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# Gender homophily and local bias in equity crowdfunding

Dandan Wang · Jörg Prokop

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**Abstract** We investigate gender-specific local biases among investors in equity crowdfunding. Based on data from a major German crowdfunding platform, we find that domestic investors favour ventures that are geographically closer to their own place of residence. This bias is particularly evident among female investors, although it is partially offset by gender homophily, whereby female investors favour companies with women in the top management team. Finally, we show that the introduction of the German Small Investor Protection Act may have exacerbated local biases in the German crowdfunding market, particularly with respect to firms with female management. Overall, our results suggest that establishing their companies in close proximity to a large number of potential female crowd investors may help improve female entrepreneurs' chances of attracting equity crowdfunding investment.

**Plain English Summary** Women back women in equity crowdfunding, but proximity matters. This study looks at how investment decisions in equity crowdfunding are affected by where a company is based and by the entrepreneur's and the investor's

gender. Based on data from a major German crowdfunding platform, it finds that domestic investors prefer to invest in ventures near their homes. Female investors show a stronger preference for local ventures and exhibit gender homophily, favouring companies with women in the top management team. The German Small Investor Protection Act seems to have made these local biases stronger. The main implication of this study is that female entrepreneurs should locate their business near a large group of potential female investors to maximise their chances of obtaining start-up capital.

**Keywords** Equity crowdfunding · Local bias · Venture financing · Geographical distance · Female entrepreneur · Gender effects

**JEL Classification** D91 · G11 · G41 · J16 · O16

## 1 Introduction

Local bias is the tendency of capital market investors to overweigh local companies in their investment portfolios relative to companies that are geographically more distant. While previous research has shown that the investment decisions of both private stock market investors (Feng & Seasholes, 2004; Ivković & Weisbenner, 2005) and professional investors, like mutual fund managers (Coval & Moskowitz, 2001; Pool et al., 2012), hedge fund

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managers (Sialm et al., 2020) and venture capitalists (Cumming & Dai, 2010), can be subject to local biases, the factors driving this phenomenon are not yet fully understood. Some attribute it to local advantages with respect to information provision and monitoring (Coval & Moskowitz, 2001). Others identify it mainly as a result of psychological factors and argue that local biases may not be information-driven, but either result from higher investor attention to local firms (Huang et al., 2016) or from a general sense of familiarity with the investment target (Huberman, 2001; Pool et al., 2012).

In this paper, we tie in with the latter perspective and expand it to include a gender-specific dimension. As Croson & Gneezy (2009) illustrate, individuals tend to differ significantly in risk preferences, social preferences, and competitive preferences depending on their gender. Thus, it stands to reason to expect the effect of local biases on investment decisions to be gender-specific as well. In the following, we therefore adopt a gender perspective and investigate whether gender-specific investor preferences and investor homophily—that is, the principle that people tend to form connections with others who are similar to them (McPherson et al., 2001)—have a moderating effect on investors' local biases.

Our analysis focuses on local biases in investment decisions made in equity crowdfunding, a financing channel that has grown considerably in importance for early-stage companies over the last decade. Compared to traditional forms of entrepreneurial financing, equity crowdfunding stands out due to its standardized, internet-based investment process that facilitates the dissemination of information via crowdfunding platforms and enables investors to acquire firm-specific information at relatively low costs. However, a potential downside of this form of financing is that the quality of the information provided might be impaired by “cheap talk” (Cumming et al., 2023) or selective information release. Moreover, there is evidence that, compared to the average investor in traditional capital markets, equity crowdfunding investors tend to be more diverse and more driven by a community logic based on trust and reciprocity (Cumming et al., 2019; Vismara, 2019). Further, they tend to monitor the firms they invest in less actively (Blaseg et al., 2021).

Given these differences, it is unclear whether the factors driving local biases in traditional segments of the financial market also apply to equity crowdfunding. Our aim is therefore to contribute to previous research by investigating the impact gender-specific local biases have on investment decisions in this particular area. In this context, we examine whether (a) the investors' gender and/or (b) the entrepreneurs' gender are moderating factors with respect to equity crowdfunding investors' local biases. Regarding the operationalisation of the term “gender”, our analysis focuses on the outer ends of the gender spectrum and conceptualizes gender as a binary factor to distinguish the socially constructed roles of male and female investors and entrepreneurs.

Our analysis is based on a dataset that comprises 136,507 investment decisions made by 16,933 individuals between June 2012 and May 2019 on the German crowdfunding platform Companisto. We conduct instrumental variable probit regression analyses and examine the determinants of the probability that investors fund a specific equity crowdfunding project.

The results of our analysis suggest that geographic proximity matters in domestic crowdfunding investors' decisions, with female investors exhibiting a stronger local bias than male investors. These results turn out to be robust to the introduction of the German Small Investor Protection Act (SIPA), a significant change in the German regulatory framework for equity crowdfunding that occurred in 2015. Moreover, our study provides evidence of gender-related homophily in equity crowdfunding, as female investors tend to prefer ventures with females in the top management team (TMT). In addition, we show that ventures with female TMT members are more strongly affected by investors' local bias, even after controlling for female investors' homophily.

Our findings have implications at several levels. For investors, they highlight the existence of a behavioural bias that may lead to suboptimal portfolio choices. For female entrepreneurs, they show that choosing the “right” location for a venture's headquarter—that is, a location in close proximity to a large number of potential female crowd investors—may be of particular importance to increase their chances of attracting investments. Likewise, in the case of online platforms, the findings suggest that designing the matching process of investors

and ventures in a way that makes it easier for female investors to identify female-led ventures may foster the sustainable development of the equity crowdfunding market. Finally, the results may be relevant for policymakers in assessing the impact of regulatory measures directed at protecting small investors in the context of entrepreneurial finance.

The remainder of this paper is structured as follows. In Section 2, we provide an overview of the existing literature on local biases and develop our hypotheses. In Section 3, we describe the research design. In Section 4, we present the results, and in Section 5, we draw our conclusions.

## 2 Literature review and hypothesis development

### 2.1 Local bias in traditional financial markets

Local bias is a well-documented phenomenon in financial markets. Coval & Moskowitz (1999, 2001) and Pool et al. (2012) find it in mutual fund managers' investment decisions. Sialm et al. (2020) show that the managers of funds of hedge funds tend to overweight hedge funds located in their regions. Similarly, several studies identify local biases in private equity investments (Chan et al., 2005; Florida & Smith, 1993; Powell et al., 2002; Zook, 2002). In particular, Cumming & Dai (2010) report that the average distance to the ventures contained in venture capitalists' portfolios is about 48.5% lower than the average distance to those in a benchmark portfolio. Besides professional/institutional investors in traditional financial markets, individual/household investors also exhibit a preference for holding local stock (Benartzi, 2001; Feng & Seasholes, 2004; Grinblatt & Keloharju, 2001; Huang et al., 2016; Huberman, 2001; Massa & Simonov, 2006; Seasholes & Zhu, 2010). As shown by Ivković & Weisbenner (2005) based on US market data, retail investors seem to exhibit an even stronger local bias than US mutual fund managers do.

A number of studies have been carried out to explore why people have a preference for investment opportunities geographically closer to their place of residence. Some researchers argue that this behaviour is rooted in rational considerations (such as Coval & Moskowitz, 2001; Ivković & Weisbenner, 2005; Massa & Simonov, 2006; Ivković et al., 2008). For

instance, Coval & Moskowitz (2001) posit that geographic proximity facilitates investors' access to private information about local companies, lowers their cost of information acquisition and processing and allows for better monitoring and control. Feng & Seasholes (2004) point out that investors may not only possess more information about nearby companies, but also more precise information. In this context, Coval & Moskowitz (2001) and Ivković & Weisbenner (2005) confirm that locally available information is value-relevant, and that both professional and individual investors are capable of exploiting local informational advantages to achieve superior returns. Indeed, the better investors are able to exploit local knowledge, the higher the abnormal returns they may earn on their local investment.

Other researchers discard the notion of differences in information asymmetries between investors who are more or less close to the target firm as the main explanation and instead focus more on psychological factors. For instance, McPherson et al. (2001) show that homophily and its effects on individuals' social networks may explain the local bias. They suggest that, along with other sociodemographic, behavioural and intrapersonal characteristics (like race, ethnicity, age, gender, education, religion, family and organizational ties), geographic proximity contributes to the formation and to the persistence of homophilous network connections.<sup>1</sup> Individual investors may thus share the same social and cultural background as executives of geographically close companies. They may also have close personal ties with these local executives. According to Huberman (2001), familiarity may be another reason for the existence of local biases.<sup>2</sup> He argues that individual investors may simply select the stocks they are familiar with. Grinblatt & Keloharju (2001) classify distance along with language and culture as attributes of familiarity and conclude that distance is only part of the causes of investors' preference. Graham et al. (2009) argue that perceived competence plays a role in explaining local bias. The more competent investors feel they are able to understand the risks and benefits associated

<sup>1</sup> McPherson et al. (2001), p. 415.

<sup>2</sup> "Familiarity is associated with a general sense of comfort with the known and discomfort with—even distaste for and fear of—the alien and distant," Huberman (2001), p. 19.

with foreign investments, the more likely they are to diversify internationally. However, Strong & Xu (2003) and Benartzi (2001) suggest that greater optimism and overconfidence towards local investment opportunities may explain investors' preference for local investment opportunities. Finally, Huang et al. (2016) detect a local bias in investor attention, which may also play a role in the formation of local bias in investments.

In summary, while the existence of a local bias in the average investor's portfolio can be considered a stylised fact, there is no consensus on the root causes of its existence. However, it is generally assumed that a local bias leads to sub-optimal investment decisions and the creation of portfolios that are not optimally diversified.

## 2.2 Local bias in crowdfunding

There is reason to believe that the decision-making behaviour of investors involved in crowdfunding, particularly in equity crowdfunding, differs from what we observe in traditional financial markets. The fact that crowdfunding takes place in the virtual space of the Internet has certain advantages, such as facilitating the flow of information, reducing information acquisition costs and broadening the information available on the investment opportunity set. In equity crowdfunding, the generally high level of standardisation of the investment process, combined with the largely homogenised nature of information provision through online platforms, reduces transaction costs and facilitates automated information processing. Consequently, one would expect that location-based informational asymmetries should be less relevant in equity crowdfunding than in other, more traditional investment/financing contexts.

However, despite these potential advantages, local informational advantages may persist for several reasons. First, the information provided on a platform might be "cheap talk" (Cumming et al., 2023). Since crowdfunding platforms charge fees based on successful financing rounds, there may be an incentive to make ventures appear more attractive to investors by filtering the information released accordingly. Second, the generation of a local bias might even increase with the amount of information available, since investors might feel the need to simplify information processing by filtering available information

based on pre-existing expectations, attitudes, or rules of thumb (Günther et al., 2018; Van Nieuwerburgh & Veldkamp, 2009). Third, controlling and monitoring activities are generally costly and investment contracts in equity crowdfunding are typically provided by platforms in a standardized form without built-in early warning or control mechanisms. Since crowd investors often exhibit limited investment proficiency, pledge only small amounts of money and hold only small stakes in a venture, their incentives to exercise control are typically low. Moreover, in the presence of a large number of peer investors, they may prefer to free ride on others' costly monitoring activities (Blaseg et al., 2021). Fourth, the emotional aspects discussed in the previous section may also affect investor decisions in equity crowdfunding. For instance, crowd investors may exhibit a familiarity bias and prefer geographically closer investment targets that they can more easily obtain tangible information about, such as through physical visits to the production sites, or direct contacts to customers/suppliers/employees. Finally, compared to professional investors, private investors tend to be less knowledgeable with respect to financial market theories, and less experienced in portfolio management and optimization (Grinblatt & Keloharju, 2001; Lütje & Menkhoff, 2007). As a result, equity crowdfunding investors, the majority of whom are private and small-scale investors, may be more prone to local biases when making investment decisions than investors in traditional segments of the financial market.

Despite the growing importance of crowdfunding in corporate financing and the still existing need for a better understanding of crowd investors' behaviour, few empirical studies have investigated whether geographic proximity plays a role in this context.<sup>3</sup> Based on data from the pre-purchase crowdfunding platform SellaBand, Agrawal et al. (2015) reveal investment patterns over time that are related to geographic distance, as local investors seem to invest in projects at a much earlier stage. However, this pattern disappears when "family and friend" investors are controlled for. Moreover, distant investors seem to become more willing to pledge money as the project accumulates

<sup>3</sup> For other studies on investment locality in the crowdfunding context, see Mendes-Da-Silva et al. (2019), Burtch et al. (2014), and Mollick (2014).

capital, whereas local funders do not. These results imply that private information may play a role in explaining the local bias. Giudici et al. (2018) find that residents of the same geographical region exhibit altruistic tendencies towards their neighbours' reward-based crowdfunding projects—a tendency termed “local altruism” by the researchers—due to the lower information asymmetries. They stress that social relations among residents, one dimension of localised social capital, help mobilise the pool of local altruistic backers and hence magnify the positive effect of local altruism.

Local bias in investors' decisions is also found in lending-based crowdfunding (see, for instance, Jiang et al., 2020; Lin & Viswanathan, 2016). However, in this case, it does not seem to be driven by information asymmetries. Observing an underperformance of location-biased investors in the Chinese peer-to-peer (P2P) lending market (involving higher default risk, lower recovery rates and lower realized returns), Jiang et al. (2020) argue that the P2P-lenders' bias is not rooted in local informational advantages. Rather, they highlight the role of social heterogeneity, including geography, language and social trust, in explaining the degree of investors' local bias. Moreover, based on transaction data from the US platform Prosper.com, Lin & Viswanathan (2016) provide support to the emotional explanations of the local bias found in debt-based crowdfunding. They use a quasi-experimental approach and a natural experiment to control for the effect of unobservable quality-related information enveloped in the borrowers' location and document a strong local bias in both settings. They conclude that the local bias in the debt-based market is not driven by private information available through social networks (like friends and friends of a friend) or other typical economic factors (like value-relevant information concealed in a venture's location). Instead, they claim that the local bias is more likely to be a psychological phenomenon.

With respect to equity crowdfunding, there are only few empirical studies on local biases so far. Based on Australian data, Günther et al. (2018) find that home-country investors exhibit a strong preference for geographically closer ventures, while foreign investors do not seem to be subject to such a local bias. Similarly, conducting a choice-based conjoint experiment in central Europe, Niemand et al. (2018) confirm the existence of a home bias

in equity crowdfunding and attribute it to investors' avoidance of foreign currencies and a preference for a common supranational regulatory framework (that is, EU-wide legislation) as opposed to a national one. Moreover, based on offering-level data from the UK platform Crowdcube, Cumming et al. (2021) shed light on the role of geographical distance in equity crowdfunding. They show that the location of a venture has a bearing on its funding outcome: Compared to their peers in metropolitan areas, ventures in rural/remote areas have higher chances to complete an equity crowdfunding offering successfully. Finally, analysing hand-collected data on individual investments made on two German platforms for the period from November 2011 to August 2014, Hornuf et al. (2022) find that a local bias exists not only at the individual investment level, but also in the value-weighted portfolios of individual investors. They show that angel-like investors (with an investment amount of 5000 euros or more per campaign) are more likely to invest in geographically closer ventures, while well-diversified investors are less likely to exhibit such a local bias. Moreover, they observe an underperformance of local investments and therefore suggest emotional instead of economic factors as possible reasons for the existence of the local bias.

In summary, previous research suggests that the advantages of equity crowdfunding do not fully eliminate investors' local biases. However, it is worth noting that many of the studies conducted so far rely on data from periods when the equity crowdfunding market was still in its infancy, and that investors who invest in early-stage markets may differ significantly from those entering later. On the one hand, the early investors may be more active in seeking out investment opportunities and may arguably be more versed in exploiting information provided online. They might also exhibit higher investment literacy and thus suffer less from behavioural biases, like homophily, over-optimism and overconfidence. On the other hand, they might be more cautious in selecting ventures and thus may be more inclined to fund nearby ventures, given higher uncertainties regarding the market's track-record, stability and regulation (or lack thereof). Therefore, in the first step, we corroborate whether equity crowdfunding investors' investment decisions are subject to a local bias, defined as a preference for ventures that are located closer to the investors' place of residence.



Next, the focus of our analysis lies on the potential differences in the local bias between female and male investors. Previous studies controlling (among other things) for the investor's gender found no significant differences between the investment choices made by men and women. However, there are at least two reasons why we believe that it makes sense to investigate this aspect in more detail. First, the aforementioned differences between early and late investors in the equity crowdfunding market may be stronger among females than among males. Second, in the literature on gender differences, it is widely acknowledged that males and females have different styles of processing information. As suggested by the selective model of information processing, males tend to use heuristics to process information and base their judgements on selected cues, whereas females tend to use more comprehensive, holistic processing models and base their judgements on multiple available cues (Byrne & Worthy, 2015; Darley & Smith, 1995; Meyers-Levy & Maheswaran, 1991). This distinction might influence male and female investors' perception of risk and result in them having dissimilar investment strategies.

Applying this logic to the equity crowdfunding context, the difference in how information is processed might result in differences in how local biases affect male and female investors' choices. Male investors might mainly exploit information about the campaign provided on the platform and base their judgement about the quality and prospect of a venture on this information set in the first place. In contrast, female investors might consider the information available online more as a supplement to their pre-existing local knowledge and judgement. Consequently, while local information may not play a major role in male investors' decision-making process, female investors may rely more heavily on the local information advantage when selecting investment targets. As a result, both male and female crowd investors might be sensitive to a venture's geographic distance from them, yet the latter may exhibit a stronger local bias.

In this context, existing studies on traditional financial markets have documented a stronger local bias among female investors than among male investors and provide evidence that emotional factors influence female and male investors to a different degree. For instance, Lütje & Menkhoff (2007) find that a higher risk aversion of female fund managers might

explain why they are more inclined to invest in local assets when constructing their portfolios. Graham et al. (2009) report that female investors generally perceive themselves as less competent with respect to their understanding of the risks and benefits of international diversification than their male peers, and that they therefore exhibit a stronger home bias. Mohammadi & Shafi (2018) find evidence of a greater risk aversion of female crowd investors than their male peers. Moreover, Groza et al. (2020) investigate the role of social ties in reward-based crowdfunding and find that women rather strengthen existing ties by supporting projects initiated by individuals who are part of their own social network, while men seem to prefer supporting projects initiated by individuals outside their network.

Based on these findings, we assume that female investors in equity crowdfunding are more prone to local biases when making investment decisions. Thus, we examine the difference in geographic sensitivity between male and female investors at the individual investment level by testing the following hypothesis:

**H1:** In equity crowdfunding, female investors exhibit a stronger local bias than male investors.

In the next step, we explore potential differences between female-led and male-led ventures in the impact of geographical distance on funding success. By taking into account investors' potential local bias, we contribute to the general literature on gender differences in equity crowdfunding success that is mostly based on campaign-level data. For instance, Cumming et al. (2021) and Malaga et al. (2018) report that entrepreneurs' gender does not play a role in determining the probability of successfully completing equity crowdfunding campaigns. In the UK market, Rossi et al. (2021) show that the amount of capital raised by female entrepreneurs in their first equity crowdfunding campaigns does not significantly differ from that raised by their male peers, provided that female entrepreneurs set lower targets. Based on data from the German market, Prokop & Wang (2022) provide evidence that women-led ventures are as successful as those led by men in attracting funding in first-time equity crowdfunding campaigns. Horvat & Papamarkou (2017) and Battaglia et al. (2021) observe that female entrepreneurs are even more likely to reach their funding target than

male entrepreneurs. These findings appear to contradict previous evidence with respect to other forms of entrepreneurial financing that suggests that investors tend to discriminate against female entrepreneurs (see, for instance, Eddleston et al., 2016; Malmström et al., 2020; Marlow & Patton, 2005).<sup>4</sup> A potential reason for this discrepancy is that in equity crowdfunding, the investor base differs from the ones in other forms of financing in terms of investment motivation, financial literacy, risk preferences and gender composition (Cumming et al., 2021; Mollick & Robb, 2016; Vismara et al., 2017). Moreover, recent studies examining individual investment decisions indicate that social preferences may play a part in explaining the equal or even higher success rates of female entrepreneurs in equity crowdfunding. For instance, Greenberg & Mollick (2017) provide evidence in favour of activist homophily in equity crowdfunding. They find that female investors support female entrepreneurs in industries where they are underrepresented and argue that this may explain why female entrepreneurs are more likely to succeed in equity crowdfunding than their male peers are. Johnson et al. (2018) find that investors are inclined to perceive female entrepreneurs as more trustworthy and more willing to support them. Vismara et al. (2017) show that female investors exhibit a stronger preference for female-led ventures, while male investors show a slightly higher propensity to invest in male-led ventures. Bapna & Ganco (2021) find that inexperienced female investors are strongly supportive of female entrepreneurs; however, this gender-based activism is not observed among male investors or experienced female investors. Therefore, they conclude that as investor capability and investing confidence increase, both male and female investors will focus more on achieving financial returns and thus will become more “gender-blind”.

Taken together, these findings suggest that the success of female entrepreneurs in equity crowdfunding may be highly dependent on their ability to attract

investment from female investors. However, as Vismara et al. (2017) show, women tend to be severely under-represented among crowd investors. Furthermore, regardless of gender, a significant proportion of equity crowdfunding investors are inexperienced and may be more susceptible to both local biases as well as social causes, including gender-based activism. Against this background, distance-biased female crowd investors may be less likely to support more distant female entrepreneurs. Thus, geographic proximity may have a larger negative effect on the ability to attract investment for ventures with women in the top management team than for those with male-only top management. We investigate this issue by testing the following hypothesis:

**H2:** In equity crowdfunding, geographical distance has a more negative impact on investors’ propensity to invest in a campaign for ventures with women in the top management team than for male-led ventures, even after controlling for gender-related homophily.

### 3 Research methodology and data

#### 3.1 Variables and model specification

We conduct multiple regression analyses to assess the influence of geographic proximity on investment decisions and its diversity among female and male investors (H1). These analyses also show whether gender-related homophily exists in equity crowdfunding and whether ventures with female entrepreneurs would benefit more from geographic proximity to investors in the presence of gender-related homophily (H2).

In our analyses, we control for the potential endogeneity problem related to the target amount of capital to be raised. If a company decides to increase the target amount during a campaign because crowd investors’ interest in the venture is high, this adjustment may have an impact on the campaign’s duration, funding dynamics and individual investors’ decisions. To mitigate this potential endogeneity issue, we follow the approach used by Cumming et al. (2019) and Rossi et al. (2021) and include the average target set by ventures that operate in the same industry and have launched campaigns on Companisto in the

<sup>4</sup> While a large number of existing studies document that female entrepreneurs have equal or even better chances of successfully completing their equity crowdfunding campaigns compared to their male peers, there are also some studies that find that female entrepreneurs are less successful in equity crowdfunding (see, for instance, Andrieu et al., 2021; Geiger & Oranburg, 2018).



past 12 months as an instrument in the analysis. The resulting instrumental variable (IV) probit regression model is specified as follows, with the main variables printed in bold:

$$\begin{aligned}
 Investment_{ij} = & \alpha_{ij} + \beta_{1ij} \ln(distance_{ij}) + \beta_{2ij} \textbf{Female}_{ij} \\
 & + \beta_{3ij} \textbf{Other investment-related variables}_{ij} \\
 & + \beta_{4ij} \textbf{Investor-related variables}_{ij} \\
 & + \beta_{5ij} \textbf{TMT\_Female}_{ij} \\
 & + \beta_{6ij} \textbf{Other venture-related variables}_{ij} \\
 & + \beta_{7ij} \textbf{Campaign-related variables}_{ij} \\
 & + \beta_{8ij} \ln(distance_{ij}) \times \textbf{Female}_{ij} \\
 & + \beta_{9ij} \textbf{Female}_{ij} \times \textbf{TMT\_Female}_{ij} \\
 & + \beta_{10ij} \ln(distance_{ij}) \times \textbf{TMT\_Female}_{ij} \\
 & + \beta_{11ij} \ln(distance_{ij}) \times \textbf{Female}_{ij} \times \textbf{TMT\_Female}_{ij} \\
 & + \epsilon_{ij}
 \end{aligned}$$

The dependent variable is the dummy variable *Investment* which takes the value of one if a specific investor *i* made an investment in a specific venture *j* and zero otherwise. As independent variables, we consider the following characteristics of the investments, investors, ventures and campaigns that might have a bearing on investors' investment decisions.

The first category of independent variables consists of factors related to individual investments. We compute the geodesic distance between the individual investor and the venture for each investment using the approach suggested by Vincenty (1975).<sup>5</sup> We use  $\ln(distance)$ , the natural logarithm of the distance measure, in our regression models and expect this variable to exhibit a negative coefficient, which would imply that investors are distance-sensitive and more reluctant to pledge money to geographically more distant ventures. In addition, we define a dummy variable *Female* that assumes a value of one if the investment decision is made by a female investor, and zero otherwise. A significant positive coefficient on this variable would imply that female investors demonstrate a greater propensity to pledge capital for equity crowdfunding ventures than their male counterparts.

Moreover, we include three investment-time-specific variables—*Cum.#Investor*, *Cum.Amount%target*, and *#Available ventures*—in the regression models. The first two variables reflect the funding dynamics as well as the attractiveness of the venture itself. *Cum.#Investor* measures how many investors have invested in the venture up to the day before each investment decision, while *Cum.Amount%target* reflects the amount of capital accumulated by the venture up to the day before each investment decision. In particular, these two variables capture information cascade effects among investors that may play a role in equity crowdfunding (Hornuf & Schwienbacher, 2018; Vismara, 2018). On the one hand, given that ventures in equity crowdfunding typically issue only a pre-determined number of shares granting ownership or profit participation rights (Hornuf & Schwienbacher, 2018), an already large investor base might deter potential new investors from investing in a venture due to the anticipated further dilution of their stakes. On the other hand, the more attractive the venture seems, the more likely potential new investors are to herd. Hence, regarding the expected signs of the two variables, it is unclear which of the aforementioned effects dominates.

The third investment-time-specific variable, *#Available ventures*, is the number of all the ventures available on the platform in the period starting four weeks before and ending four weeks after each individual investment. Fierce competition on the platform satisfies the need of investors for diversification but reduces the attractiveness of a single venture. Finally, *Weekday*, *Month* and *Year* dummies are added to eliminate any time-variant effect.

The second category of independent variables is linked to investors. These characteristics could be specific to a certain investor (like gender and place of residence) or common among a certain group of investors (like those related to diversification needs and risk preferences). The former are usually observable, whereas the latter are often unobservable and have to be estimated. The number of ventures invested in and the amount of capital invested (in thousands of euros) by each investor over the whole sample period (*#Ventures invested* and *Total amount*) are included to account for a potential influence of investors' diversification needs and risk attitude. The more the need for diversification the investor has, the more ventures he or she will invest in, and the lower the amount he

<sup>5</sup> As a measure of geodesic distance, some studies use the great circle distance instead of Vincenty's approach (e.g. Günther et al., 2018). We rely on the latter because it is based on an ellipsoidal model of the Earth and tends to deliver more accurate results than the great-circle distance, which assumes a spherical Earth. We compute the Vincenty distance between two points on the surface of the Earth with the World Geodetic System-84 ellipsoid.

or she will invest in a single venture. Therefore, we conjecture that the former is negatively associated with the investment amount. The latter is expected to have a positive effect on the investment decision, since a greater amount of total capital invested implies a lower degree of risk aversion with regard to equity crowdfunding campaigns and a greater amount of capital available for investments. These variables serve as proxies for investors' financial literacy (Abreu & Mendes, 2010; Hornuf et al., 2022).

Moreover, we categorize investors into deciles based on the amount of capital they have pledged on Companisto by the end of the sample period. The variable *Decile\_Total amount* is supposed to control for unobservable characteristics that are shared within groups of investors (such as income deciles, risk attitudes and favouritism to Companisto in different degrees). *Investor region* (the NUTS 2 level) dummies are included to account for any potential heterogeneity, observable or unobservable, among the regions in the social, political, economic and cultural dimensions.

The third category consists of venture-specific factors. This first includes the characteristics of the top management team (TMT), which can influence the venture performance and hence are considered by investors when selecting ventures. We define TMT members founders who hold chief executive officer or managing director positions in the venture. We note that, in the equity crowdfunding market, most ventures are young businesses and are mainly founded without external investors. Their founders are usually either managing directors or hold other important managerial positions. Therefore, founders not holding managing director positions are also included in the analyses to control for a potential persistent impact of the founders. Previous studies confirm that certain entrepreneurial characteristics (such as the size of the team, gender, educational background, social ties and personal values) are associated with venture performance in terms of longevity, financial strength, and profitability (Bates, 1990; Eisenhardt & Schoonhoven, 1990; Halebian & Finkelstein, 1993; Hsu, 2007; Ling et al., 2007; Nelson, 2003; Tang et al., 2010). Coakley et al. (2022) find that investors in equity crowdfunding tend to show a preference for founder teams over solo founders launching first-time campaigns. Based on the findings from previous research, we include in this category the size of

the top management team *TMT\_Size*, ownership of a doctoral title *TMT\_Dr* (to capture the influence of human capital), and ownership of an MBA degree *TMT\_MBA* (for the venture's social capital). We also include a dummy variable *TMT\_Female* indicating whether the venture has at least one female TMT member. This variable investigates the influence of the TMT gender composition on investment decisions. In particular, a significant positive coefficient on the interaction term between this variable and the *Female* investor variable would provide evidence in favour of the existence of gender homophily.

The dummy variable *Financial info* indicates the availability of financial reports on the German company register *Bundesanzeiger*. Two dummy variables, *Government loan* and *Award* (having received government loans and an ownership of awards, respectively) serve as proxies for third-party accreditation and recognition. Assuming that records of accomplishment and third-party accreditation signal venture quality to potential investors and reduce information asymmetries between ventures and investors, we expect *Financial info*, *Government loan*, and *Award* to have a positive impact on the investment decision. *EarlyCI* is a dummy variable that takes the value of one in the case that the venture has already successfully pursued equity crowdfunding earlier or zero otherwise. Here, it is considered that ventures that launch follow-up campaigns might be capable of better presenting themselves and their projects, while the success of a previous financing round conveys positive information to crowd investors about the accreditation of other investors, the development of the business, and the promise of the venture. We expect this variable to have a significant influence on investment decisions. *EarlyInvestor* is added to take into account the influence of existing external investors, like business angels and venture capitalists. The presence of external investors prior to the funding campaign functions as a positive signal to investors of the quality and promise of the venture. We also include *Company age* in the model. On the one hand, investors might be more likely to perceive relatively mature ventures as less risky, but on the other hand, they might be reluctant to finance a mature company, assessing it as less capable of growing and generating substantial profits. This suggests that company age might have a curvilinear influence on its funding results. To account for this possibility, we include the squared company age

in the model. Ignoring the potential quadratic relationship, previous studies do not provide robust evidence about the relationship between company age and funding performance (such as Ahlers et al., 2015; Hornuf & Schwienbacher, 2015). *Patent* is a dummy variable used to control for the intellectual capital of a venture. Patent ownership serves as a signal of a venture's innovative capacity, competitiveness, and future survival potential. Vismara (2016) confirms that patent ownership can contribute to a venture attracting sophisticated investors at its early stage, although it does not play a role in its funding campaign success. Ventures in the software/IT sector are often viewed as high risk yet high return; therefore, investors might exhibit a preference for ventures in the other industry sectors with lower risk. We add the *Software/IT* dummy variable in the regression. Similarly, we add the dummy variable *Stage\_Seed/Early*. *GmbH* is a dummy variable controlling for the different legal forms of ventures and their corresponding common characteristics. This takes the value of one if the venture was established in the legal form of a GmbH ("Gesellschaft mit beschränkter Haftung", the German form of Limited Liability Company), or zero otherwise.

Since ventures financed via equity crowdfunding might be more likely to be located in densely populated metropolitan areas to benefit from being close to a bigger pool of investors or other stakeholders, we control for this potential endogeneity by accounting for *Big city* fixed effects in our analysis. We focus on five metropolitan cities: Berlin and Cologne (due to the size of the potential local customer base, the international investor base, and the sizes of their universities as a proxy for innovativeness), Hamburg (due to its relevance as a centre for the media industry), Frankfurt (due to its role in the financial services sector), and Munich (due to its role in (medical) technology, and the sizes of its universities). Moreover, local crowd investors' investment decisions may be influenced by the company's localized offline activities, such as open house events and coverage in local newspapers or other media. To account for this factor, we check the websites of all campaigns for respective information and include a dummy variable *Offline activity* in the regression that is set to unity if such activity is present before the end of the campaign, and zero otherwise.

The final category represents investment-invariant campaign-specific characteristics. The funding target (in millions of euros) and the proportion of shares offered to investors (relative to total shares) are contained in this category. A higher funding target indicates that venture managers are confident about their projects. The campaign target is instrumented by *Average target* (in million euros), that is, the average of targets set by ventures that operate in the same industry (based on ISIC Revision 4, A\*10 aggregation) and have launched campaigns on Companisto within the past 12 months. The effect of the shares offered needs careful examination. On the one hand, a higher proportion of shares offered through equity crowdfunding might be perceived as a negative signal by crowd investors, indicating that the founders do not have enough confidence in their project and would rather trade their shares for a certain cash inflow. On the other hand, it might also be seen as an indication that the venture can be backed by a larger number of investors and will thus more likely reach (or exceed) its funding threshold.<sup>6</sup> Moreover, we also account for the type of financing instrument employed in the campaign. *Participation rights*, *voting rights*, *silent partnerships*, *loans*, *profit-participating loans* and *shares* are available as financing instruments in the German equity crowdfunding market. *Co-Financing* is a dummy variable accounting for the fact that on Companisto it is possible for ventures to launch equity crowdfunding campaigns while being simultaneously co-funded by professional investors. Companisto adds tags and question marks showing explanations to the descriptions of such campaigns and calls attention to the contract terms and conditions that are potentially dissimilar to those in pure equity crowdfunding campaigns. Co-investments from professional investors signal quality and thus lend credibility to a project, allowing it to attract more capital from crowd investors. Coakley & Lazos (2021) posit that the co-financing mechanism has contributed to the positive development of equity crowdfunding in the United Kingdom.<sup>7</sup> In addition, the number of videos posted and the number of letters and characters in

<sup>6</sup> Companisto follows an all-or-nothing approach. Investments through equity crowdfunding take place only if the venture reaches its planned funding threshold during the campaign window.

<sup>7</sup> See Coakley et al. (2022), p. 287.

the campaign description (in thousands) are included in this category. These factors help ventures spark the interest of crowd investors, signal the venture quality, and hence contribute to a project's likelihood of funding success (Crosetto & Regner, 2014; Mollick, 2014). Appendix 1 summarizes the variables used in the regression analyses and their definitions.

### 3.2 Data

#### 3.2.1 Sample selection

Our analyses utilize hand-collected data on individual investments on the German equity crowdfunding platform Companisto. Companisto is especially suitable for our analysis for the following reasons: First, it is one of the leading and most active platforms in the German market. Its investor base is representative of investors involved in the German equity crowdfunding market. Second, it is the only platform in Germany that offers open-access detailed data on individual investments (the investment date, the amount pledged, and the investor) and investors (user id, ranking, voluntary disclosure of name, gender, and location of domicile). Third, it discloses information on both successful and unsuccessful campaigns, thus providing a sample free from survivor bias. Last, the use of data from the German market allows for an empirical investigation of how local bias may be affected by changes in the regulatory framework, in this case, the introduction of the German Small Investor Protection Act (SIPA) on 3 July 2015. Our venture- and campaign-related data were collected from Companisto's website on 16 May 2019, while the investment- and investor-related data were collected from the website on 17 May 2019.<sup>8</sup> We initially gathered information about 104 finished campaigns. Four

of them were later excluded since no information about the investors was available on the platform.<sup>9</sup>

For each individual investment, we collected information on the amount of capital, the date, investors with a unique user id, and the dynamically updated rank. Moreover, we extracted the following voluntary disclosures from the investor: first and last name, default image selected by the investor to indicate gender or the own image uploaded by the investor and current location. Similar to Hornuf et al. (2022), we assume that investors have no incentive to misrepresent their name, sex, or place of living. In this step, we had to exclude another three campaigns "Panono", "MyParfum" and "MyCouchbox", since the number of investor names we scraped did not equal the number of investors given by Companisto on the campaign page. Checking investments in each venture, we noticed that 3552 investors made follow-on investments, while for each investor all of the follow-on investments took place on the same date as their first investment in each corresponding venture. Therefore, we merge them into their first investment in each corresponding venture. To identify the gender of the investor, we check the platform's default image selected by the investor and extract the gender information. If the investor instead has uploaded an own image, we use the Python package "*gender guesser*" to infer the gender from the first name of the investor. Analysing the first name, the package can return one of the following six values: "male", "female", "mostly male", "mostly female", "andy" (androgynous) and "unknown" (name not found in the dataset). We kept only cases returning the values "male" and "female" in the dataset.

In order to calculate the geographical distance between the investor and the venture for each investment decision, we further need information about the location of the venture. We thus extract the location of the venture from the campaign webpage and compare it with information obtained from *Bundesanzeiger*. If they are not identical, we use the latter one for the calculation. If an investor only gives the federal state name, we assign him or her to the centre of the state. We then employ the *ArcGis geocoding* module in Python to convert the venture and investor

<sup>8</sup> We note that our investment data were collected following an ex-post approach, as no information is provided on the platform about investments withdrawn during each campaign. Hornuf and Schwenbacher (2018) examine data from four German platforms (including Companisto) and find that 0.21% of 26,967 investments were withdrawn. Based on their findings, we propose that a negligible proportion of investments are withdrawn during campaigns contained in our dataset, which will not bias our results.

<sup>9</sup> They were "Weissenhaus", "Weissenhaus 2", "Companisto 1" and "AMERIA".

locations into coordinates and the *geodesic* module in Python to calculate the distance between them. Investments for which the location is unavailable or the location could not be uniquely identified were excluded from the dataset. After this step, our sample was reduced to 62,810 investments from 20,308 investors. In addition, we discarded investments made by corporations due to the obvious lack of information on these investors' gender. On Companisto, ventures normally have 2 months to reach the investment threshold (usually set at 100,000 euros), but there are also cases in which campaigns are extended for another 2 months. In the following, we only consider investments taking place in the first 120 days after the campaign starts. Finally, we eliminated investments made by foreign investors since, in line with what Günther et al. (2018) observed for the Australian market, we expect that they would be less likely to exhibit a local bias with respect to German ventures. In particular, we assume that foreign investors do not exhibit significant differences in distance sensitivity when evaluating female-led ventures. Furthermore, we do not expect female foreign investors to be more sensitive to the geographical distance of target firms than their male counterparts.<sup>10</sup> Appendix 2 provides a detailed overview of the sample selection process. Our dataset covers the period from the inception of the platform in June 2012 to 17 May 2019.<sup>11</sup> The final sample consists of 51,423 investments in 97 ventures made by 16,933 domestic investors, with an average of 175 investors funding a venture. For each investment made, we identify all ventures available on the platform in the period starting four weeks before and ending 4 weeks after the investment has taken place. In this way, we reconstruct the full set of Companisto-specific investment choices available to the investor at the time of the investment in question (136,507 in

total). We winsorise all continuous variables at the 5% and 95% levels to control for the effects of potential outliers.

### 3.2.2 Descriptive statistics

In the following, we provide an overview of the main characteristics of the final sample.<sup>12</sup> Out of a total of 136,507 available investment opportunities, investors chose to invest in 51,423. At the time an investment decision was made, there were, on average, three ventures actively seeking capital on the platform. These ventures, on average, have raised 24.9% of their target amount from 197 investors and the average distance from the investors was 337 km. The distribution of individual investments in our dataset ranges from 4 to 1000 euros and is skewed towards small investment amounts, with an arithmetic average of 341 euros, and a median investment of 200 euros. Investments were made in ventures located an average of 329 km away from the investors' location (median distance, 360 km).<sup>13</sup> Women account for 16.7% of the 16,933 domestic investors in our sample and make 10.5% of the investments. On average, each investor pledged a total of 1863 euros to three ventures on the platform. Moreover, most of the investors came from the most populated federal states, namely North Rhine-Westphalia (17.3%), Bavaria (16.7%) and Baden-Württemberg (14.1%). A notable exception is the city of Berlin, which accounts for 14.5% of the investors in our sample.

Regarding the ventures' characteristics, most of the firms in our sample had small and male-dominated top management teams. The average team consisted of two members, with only 13.4% of the ventures having at least one female managing director. On average, ventures seeking equity crowdfunding on Companisto were young: Their median age was two years, and all of the ventures were younger than 19 years when starting their equity crowdfunding campaign, with a mean age of about 3.6 years. Also, 85.6% of the ventures had the legal form of a limited liability company (GmbH). Further, 12.4% of the ventures

<sup>10</sup> We verify and confirm these assumptions in a robustness test based on a sample of 18,837 investment decisions (6918 investments) from 2372 international investors. See Appendix 7 for more information.

<sup>11</sup> Hornuf et al., (2022, p. 704) base their analyses on a dataset of 20,460 investments by 6724 investors in 74 ventures between November 2011 and August 2014. Compared to their dataset, our dataset hence covers a wider investor base, which reflects the growth of equity crowdfunding in Germany after 2014 that is, in our view, likely to go hand in hand with more diverse investor characteristics regarding, for instance, personal values, risk aversion and financial literacy.

<sup>12</sup> Detailed descriptive statistics for the investment-, investor-, and venture/campaign-related variables are summarised in Appendix 3.

<sup>13</sup> These statistics are similar to those reported by Hornuf et al. (2022) who observe an average investment amount of 526 euros and an average distance of 371 km.



have received government loans and 28.9% reported having received an award. Fifteen ventures (15.5%) claimed that they own a patent or have submitted a patent application. Nine ventures (9.3%) were launching follow-up campaigns, while 72 ventures (74.2%) had already raised capital from investors, including business angels and venture capitalists, before starting their campaigns on Companisto. A total of 41.2% of the ventures have been covered in local media or organized localized offline activities before the end of their campaigns. A total of 99.0% of the ventures were located in one of the five metropolitan cities of Berlin, Cologne, Hamburg, Frankfurt or Munich. In particular, 47.4% were located in Berlin, where the crowdfunding platform is based as well.

Finally, regarding the campaign-related variables, the ventures in our sample, on average, aimed to raise 0.5 million euros by selling 11.6% of their shares. The majority, 84.5%, selected the profit-participating loan as a financing instrument, while the others were relying on loans, silent partnerships, or shares. Five ventures were co-funded by professional investors.<sup>14</sup>

Appendix 4 shows the pairwise correlation matrix and the variance inflation factors (VIFs) for all the continuous variables. The correlation coefficients are unremarkable, except for a relatively high correlation (0.81) between *Cum.#Investor* and *Cum.Amount%Target*, which is, however, plausible given the way we designed these variables. Both of these are based on funding results one day prior to the investment decision and they both proxy for funding dynamics, capturing the potential influence of information cascades among investors. The VIF values of all non-categorical variables are inconspicuous. Thus, we expect our regression results not to be biased by multicollinearity.

## 4 Results

### 4.1 Results of the main regression analyses

To investigate the influence of geographic proximity on investment decisions, we employ the IV probit

method and regress the investment dummy on venture-, campaign-, investment- and investor-related variables. The results are presented in Table 1. The dependent variable in all the models is the decision made by each individual investor about whether to invest. Robust standard errors are clustered at the individual investor level and shown in brackets.

The baseline model, Model 1, incorporates all investment-, investor-, venture- and campaign-related independent variables. The number of ventures and the amount of capital invested by the same investor at the time of each investment decision are included to control for a potential impact of the investor's diversification needs and risk attitudes. Moreover, we classify investors into deciles based on the amount of capital they have invested on Companisto by the end of the observation window. The decile dummies are supposed to control for unobservable characteristics that are shared within groups of investors (such as income deciles, risk attitudes and favouritism to Companisto in different degrees). *Investor region* dummies account for heterogeneity among regions (the NUTS 2 level)—observable or unobservable—with respect to social, political, economic, and cultural factors. *Big city* dummies are also included. We also add *Weekday*, *Month*, and *Year* dummies to eliminate time-variant effects. Overall, the model is significant at the 0.1% level. The results suggest that geographic proximity has a significant positive influence on investment decisions ( $\beta_{\ln(\text{distance})} = -0.0576$ ,  $p\text{-value} < 0.001$ ). Female investors are less likely to invest in equity crowdfunding campaigns than male investors, as shown by the significant negative coefficient of *Female*. The coefficient of *TMT\_Female* is positive and significantly different from zero at the 0.1% level. This implies that female-led ventures have a higher probability of receiving an investment through equity crowdfunding than those led by males. We also calculate the average marginal effect (AME) of  $\ln(\text{distance})$  and find it statistically significant at the 0.1% level. Notably, a 1% decrease in the distance leads to an average increase of 1.63% in the probability that the investor makes an investment.

Extending the baseline model, Model 2 includes three additional terms to account for possible pairwise interactions of the distance variable, the female investor dummy variable and the female TMT member dummy variable. The significant negative coefficient on the interaction term between  $\ln(\text{distance})$

<sup>14</sup> The five ventures were “MeineSpielzeugkiste 3”, “Nepos”, “Pumperlgsund”, “Replicate System” and “itravel”. Companisto states that the contracts and conditions in the co-financing case might differ from those in the pure equity crowdfunding case.



**Table 1** Regression results

	(1) Investment	(2) Investment	(3) Investment
$\ln(\text{distance})$	−0.0576**** [0.00390]	−0.0491**** [0.00433]	−0.0499**** [0.00438]
Female	−0.0237*** [0.00882]	0.157**** [0.0453]	0.126** [0.0524]
TMT_Female	0.121**** [0.0128]	0.203**** [0.0496]	0.171*** [0.0539]
$\ln(\text{distance})\# \text{Female}$		−0.0390**** [0.00829]	−0.0331**** [0.00963]
$\ln(\text{distance})\# \text{TMT\_Female}$		−0.0190** [0.00874]	−0.0130 [0.00955]
TMT_Female#Female		0.165**** [0.0336]	0.341*** [0.127]
$\ln(\text{distance})\# \text{TMT\_Female}\# \text{Female}$			−0.0337 [0.0233]
AMEs of Female	−0.0067***	−0.0088****	−0.0089****
AMEs of $\ln(\text{distance})$	−0.0163****	−0.0157****	−0.0157****
At Female = 0		−0.0146****	
At Female = 1		−0.0253****	
At TMT_Female = 0		−0.0150****	
At TMT_Female = 1		−0.0210****	
At Female = 0 and TMT_Female = 0			−0.0499****
At Female = 0 and TMT_Female = 1			−0.0629****
At Female = 1 and TMT_Female = 0			−0.0830****
At Female = 1 and TMT_Female = 1			−0.130****
Other investment var.	Yes	Yes	Yes
Other investor var.	Yes	Yes	Yes
Other venture var.	Yes	Yes	Yes
Campaign var.	Yes	Yes	Yes
<i>N</i>	136507	136507	136507
<i>P</i>	0.000	0.000	0.000
Log pseudo-likelihood	−69417.371	−69384.598	−69382.681
AIC	139270.7	139217.2	139217.4
BIC	141412.4	141417.8	141437.6

This table presents the regression results based on a sample of 136,507 investment decisions made by 16,933 domestic investors across 97 ventures. The IV probit regression method is employed in all models, with the decision whether to invest in each campaign available on the platform as the dependent variable. The campaign target is instrumented by the average of targets set by ventures that operate in the same industry as the focal venture and have launched campaigns in the past 12 months. The independent variables are defined in Appendix 1. Model 1 is the baseline model consisting of investment-, investor-, venture- and campaign-related variables. Model 2 extends Model 1 by adding the interaction terms between each pair of  $\ln(\text{distance})$ , the investor's gender *Female* and the presence of female TMT members *TMT\_Female*. Model 3 is our main model including all independent variables, all three interaction terms and the three-way interaction term. Wald tests of exogeneity confirm the validity of using the IV in all three models. Investor region (the NUTS 2 level) fixed effects are controlled for in all models. Heteroscedasticity-consistent (robust) standard errors, clustered at the investor level, are reported in parentheses. \*, \*\*, \*\*\* and \*\*\*\* denote significance at the 10%, 5%, 1% and 0.1% levels, respectively

and *Female* confirms our hypothesis H1, showing that female investors are more prone to consider geographical distance in their decision-making ( $\beta_{\ln(\text{distance})\# \text{Female}} = -0.0390$ ,  $p\text{-value} < 0.001$ ). The AMEs of  $\ln(\text{distance})$  for male and female investors are both negative and significant at the 0.1% level. These results corroborate the difference in local bias between male and female investors. Specifically, male investors are on average 1.46% more likely to invest in a venture if it is located 1% closer to them, while the average probability of investment increases by 2.53% for female investors in the same circumstances. Furthermore, the interaction term between  $\ln(\text{distance})$  and *TMT\_Female* has a negative impact on the dependent variable and is significant at the 5% level. The negative and significant AMEs of  $\ln(\text{distance})$  for all-male-led and female-led ventures suggest that both groups are susceptible to investors' local bias, with the average investment probability decreasing by 1.50% and 2.10% for a 1% increase in distance, respectively. These findings are consistent with H2, the notion that investors are more sensitive to geographical distance in case of ventures with females in the top management team. Furthermore, the positive coefficient on the interaction term between *TMT\_Female* and *Female* indicates the presence of gender-related homophily. However, the overall AMEs of female investor and geographical distance remain significantly negative.

Model 3 is the main model and extends Model 2 by including a three-way interaction term among  $\ln(\text{distance})$ , *Female* and *TMT\_Female*. The coefficient of the interaction term between *TMT\_Female* and *Female* is positive and statistically significant at the 1% level. However, the coefficient of  $\ln(\text{distance})\# \text{TMT\_Female}$  and that of the three-way interaction term are negative and not statistically different from zero. These results indicate that, in the presence of gender-related homophily, female investors do not exhibit a significant preference for less distant ventures when considering to invest in female-led ventures. These results further imply that gender-related homophily does not neutralise the strong impact of geographical distance. The significant AMEs of  $\ln(\text{distance})$  show that male investors are more distance sensitive when considering to invest in female-led ventures ( $-0.0629$  versus  $-0.0499$ ). Should the venture be located 1% closer to their location, the investment probability of female investors

increases on average by 8.30% for all-male-led ventures and even 13.0% for female-led ventures.

#### 4.2 The effect of SIPA on investment decisions

Crowd investors' investment decisions are likely to be influenced by changes in their regulatory environment. In this section, we hence investigate whether our findings are robust to the introduction of SIPA in the German equity crowdfunding market on 3 July 2015. According to SIPA, subordinated profit-participating loans, the financing instrument most commonly employed in the German equity crowdfunding market, were classified as an investment product and hence subject to the prospectus requirement under the German Investment Products Act (GIPA; in German: Vermögensanlagengesetz). However, if the maximum funding amount does not exceed 2.5 million euros (§ 2a Abs. 1 GIPA) and the investment of each individual investor per venture is not more than 10,000 euros (§ 2a Abs. 3 GIPA), the company issuing subordinated profit-participating loans is exempt from preparing an issuing prospectus (the "crowdfunding exception"). Nevertheless, the company still needs to provide a three-page information leaflet (in German: Vermögensanlagen-Informationsblatt, VIB) to inform the investors about, inter alia, the company's main characteristics and the risks associated with investing in the company.

Overall, the introduction of SIPA alleviates information asymmetries between entrepreneurs and potential investors, but it may also weaken the potential effect of local information on investors' funding decisions. Moreover, SIPA sets investment limits per issuer that may alter investment behaviour substantially: To pledge more than 1000 euros to a single issuer, investors have to disclose their income and wealth status to the platform. Investments of more than 10,000 euros in a single venture have to be made through a corporate entity. As documented by Goethner et al. (2021), large investments have become less frequent after the introduction of SIPA, indicating that (arguably) more sophisticated investors may have left the market. While investments of a few hundred euros to exactly 1000 euros seem to occur more often than before, they do not seem to have the same signalling effect as the larger investments that were common before SIPA. Thus, crowd investors' information environment seems to have

**Table 2** The effect of SIPA on investment decisions

	Pre-SIPA subsample			Post-SIPA subsample		
	(4)	(5)	(6)	(7)	(8)	(9)
	Investment	Investment	Investment	Investment	Investment	Investment
ln(distance)	−0.0634**** [0.00609]	−0.0619**** [0.00665]	−0.0619**** [0.00673]	−0.0532**** [0.00555]	−0.0401**** [0.00608]	−0.0414**** [0.00613]
Female	−0.0277** [0.0122]	0.125** [0.0538]	0.126** [0.0640]	−0.0168 [0.0131]	0.219*** [0.0815]	0.151* [0.0885]
TMT_Female	−0.0145 [0.0338]	−0.153** [0.0672]	−0.152** [0.0733]	−0.0875*** [0.0295]	0.192** [0.0821]	0.139 [0.0871]
ln(distance)#Female		−0.0306*** [0.00985]	−0.0307*** [0.0118]		−0.0483*** [0.0148]	−0.0357** [0.0160]
ln(distance)#TMT_Female		0.0255** [0.0111]	0.0254** [0.0123]		−0.0539**** [0.0139]	−0.0442*** [0.0149]
TMT_Female#Female		0.0432 [0.0439]	0.0402 [0.147]		0.156*** [0.0504]	0.593*** [0.220]
ln(distance)#TMT_Female#Female			0.000593 [0.0272]			−0.0813** [0.0401]
Other investment var.	Yes	Yes	Yes	Yes	Yes	Yes
Other investor var.	Yes	Yes	Yes	Yes	Yes	Yes
Other venture var.	Yes	Yes	Yes	Yes	Yes	Yes
Campaign var.	Yes	Yes	Yes	Yes	Yes	Yes
N	50420	50420	50420	86087	86087	86087
pseudo- $R^2$	0.209	0.209	0.209			
Log pseudo-likelihood	−27415.579	−27409.868	−27409.867	4344.3662	4367.9934	4369.9182
P	0.000	0.000	0.000	0.000	0.000	0.000
AIC	55027.2	55021.7	55023.7	−8270.7	−8306.0	−8305.8
BIC	55892.3	55913.4	55924.2	−6313.8	−6292.9	−6274.0

This table presents the regression results based on the pre-SIPA and the post-SIPA subsample. The dependent variable in all models is the investment dummy. Probit regressions are conducted in Models 4–6, because the Wald test of exogeneity shows that endogeneity with respect to the campaign target should not be an issue with the pre-SIPA subsample. The IV probit regression method, instead, is employed in Models 7–9. The campaign target is instrumented by the average of targets set by ventures that operate in the same industry as the focal venture and have launched campaigns in the past 12 months. The independent variables are defined in Appendix 1. Models 4 and 7 are the baseline model consisting of investment, investor, venture and campaign variables. Models 5 and 8 extend Models 4 and 7 by adding the interaction terms between each pair of *ln(distance)*, the investor's gender (*Female*) and the presence of female TMT members (*TMT\_Female*), respectively. Models 6 and 9 are our main models including all independent variables, all three interaction terms and the three-way interaction term. Investor region (the NUTS 2 level) fixed effects are controlled for in all models. Heteroscedasticity-consistent (robust) standard errors, clustered at the investor level, are reported in parentheses. \*, \*\*, \*\*\* and \*\*\*\* denote significance at the 10%, 5%, 1% and 0.1% levels, respectively

changed considerably with the implementation of SIPA in 2015.

In our analysis, we account for this exogenous shock by investigating whether our previous results are robust to the introduction of SIPA. We introduce a dummy variable *SIPA*, which takes the value of 1 if the investment is made to a campaign launched after

SIPA came into force and 0 otherwise. The sample is stratified into two subsamples using the introduction of SIPA as the cut-off point. The previous regression analyses are then conducted again on each subsample. The results are reported in Table 2, with Models 4–6 showing the results for the pre-SIPA subsample and Models 7–9 containing the results for the post-SIPA

subsample. As the Wald test of exogeneity does not justify the use of the IV probit model based on the pre-SIPA subsample, we employ the standard probit regression method for the pre-SIPA subsample.

Consistent with our earlier findings for the full sample, Model 4 corroborates the negative effect of geographical distance on investment decisions and the lower propensity of female investors to invest in equity crowdfunding campaigns. However, investors do not exhibit a significant difference in the likelihood of making an investment in female-led ventures compared to male-led ventures, as shown by the insignificant coefficient of the variable *TMT\_Female*. Additionally, the interaction term  $\ln(\text{distance})\#Female$  in Model 5 is negative and statistically significant at the 1% level, indicating that hypothesis H1 holds for the pre-SIPA period and female investors' decisions are more locally biased. The results for Model 5 suggest that pre-SIPA, female-led ventures even benefitted from a greater geographical distance to crowd investors, which contradicts our conjecture H2. Furthermore, female investors did not exhibit gender-related homophily in their investment decisions before SIPA. The coefficient of the three-way interaction term in Model 6 is positive and not significantly different from zero. Thus, compared to male-led ventures, female-led ventures seem to have suffered less from being geographically more distant from investors before the introduction of SIPA.

The results of Models 7–9 based on the post-SIPA subsample differ substantially from those for the pre-SIPA subsample. For instance, Model 7 suggests that female investors are as likely to invest in equity crowdfunding as male investors, while female-led ventures have a lower probability of receiving an investment through equity crowdfunding. In addition, Model 8 indicates that, after the introduction of SIPA, female-led ventures are affected more negatively by crowd investors' local bias ( $\beta_{\ln(\text{distance})\#TMT\_Female} = -0.0539$ ,  $p\text{-value} < 0.001$ ). Furthermore, we find that female investors are more likely to support female-led ventures. In Model 9, we obtain a negative coefficient for the three-way interaction term, which is significantly different from zero at the 5% level. This suggests that female-led ventures are more susceptible to crowd investors' local bias even in the presence of gender-related homophily, that is, more active support from female investors. Therefore, our conjecture H2 holds for post-SIPA investment decisions. The

negative significant coefficient on the interaction term  $\ln(\text{distance})\#Female$  further confirms Hypothesis 1, showing that investment decisions made by female investors are subject to a stronger local bias.

Overall, the findings indicate that the introduction of SIPA had a negative effect on the information environment in the German equity crowdfunding market. We take this as an indication that with SIPA, the investor base in the German market may have shifted towards less sophisticated investors whose investment decisions are more strongly affected by social preferences (homophily) and local bias.

#### 4.3 Robustness checks

Up to this point, the focus of our analysis has been on the investor's propensity to invest in a campaign as the dependent variable. However, a local bias might also affect the amount invested once the decision to invest in a campaign has been made. Thus, in the following we conduct a robustness test using the amount invested as the dependent variable. In this context, we apply a two-stage Heckman selection model to mitigate the problem of a potential self-selection bias. In the first stage, we use a probit regression model (referred to as the selection model) to investigate whether the investor has decided to invest in a venture and compute the Inverse Mills Ratios (IMRs). The second stage, being conditional on the first stage, incorporates the IMRs as well as possible factors influencing the investment decision in a multiple log-linear regression model (the outcome model). Following Wooldridge's (2010) approach, we include the variable *Target*, which is again instrumented by the variable *Average target*, in the approach.

Table 3 presents the results of the regression on the conditional investment amount. Model 10 is the basic model, which includes all investment-, investor-, venture-, and campaign-related variables. Investor region (NUTS 2 level) fixed effects are also included in the model. Heteroscedasticity-consistent standard errors are clustered at the investor level and reported in parentheses. As the results show, the negative effect of geographical distance is statistically significant at the 0.1% level, confirming the presence of a local bias in crowd investors' decisions about the amount investment. For a 1% decrease in geographical distance from the venture, we see an increase in the predicted amount of capital invested of 0.0325%.

**Table 3** Conditional investment amount

	(10) ln(amount)	(11) ln(amount)	(12) ln(amount)
ln(distance)	− 0.0325**** [0.00411]	− 0.0254**** [0.00440]	− 0.0251**** [0.00447]
Female	0.153**** [0.0252]	0.324**** [0.0528]	0.334**** [0.0576]
TMT_Female	− 0.00664 [0.0132]	0.0523 [0.0421]	0.0608 [0.0473]
ln(distance)#Female		− 0.0359**** [0.0102]	− 0.0378**** [0.0113]
ln(distance)#TMT_Female		− 0.0128* [0.00727]	− 0.0144* [0.00833]
TMT_Female#Female		0.0790*** [0.0279]	0.0401 [0.0843]
ln(distance)#TMT_Female#Female			0.00760 [0.0161]
Other investment var.	Yes	Yes	Yes
Other investor var.	Yes	Yes	Yes
Other venture var.	Yes	Yes	Yes
Campaign var.	Yes	Yes	Yes
<i>N</i>	51423	51423	51423
adj. <i>R</i> <sup>2</sup>	0.706	0.706	0.706
<i>P</i>	0.000	0.000	0.000

This table presents the regression results based on a sample of 51,423 investments made by 16,933 domestic investors in 97 ventures. The Heckman selection method is employed in all models to control for potential selection bias. The campaign target is instrumented by the average of targets set by ventures that operate in the same industry as the focal venture and have launched campaigns in the past 12 months. In all modes, the dependent variable is the amount of capital invested. The independent variables are defined in Appendix 1. Model 10 is the baseline model consisting of investment, investor, venture and campaign variables. Model 11 extends Model 10 by adding the interaction terms between each pair of *ln(distance)*, *Female* and *TMT\_Female*. Model 12 is our main model including all independent variables, all three interaction terms and the three-way interaction term. Investor region (the NUTS 2 level) fixed effects are controlled for in all models. Heteroscedasticity-consistent (robust) standard errors, clustered at the investor level, are reported in parentheses. \*, \*\*, \*\*\* and \*\*\*\* denote significance at the 10%, 5%, 1% and 0.1% levels, respectively

Additionally, female investors tend to invest more capital in the ventures than male investors once the decision to invest has been made. The amount of capital invested in female-led ventures does not significantly differ from that invested in their counterparts, although female-led ventures are more likely to be chosen by crowd investors (as shown in Model 1 of Table 1).

Model 11 extends Model 10 by including the three interaction terms among geographical distance, the investor's gender, and the presence of females in the TMT. When deciding on the amount to invest, female investors also exhibit greater sensitivity to geographical distance from the venture than male investors ( $\beta_{\ln(\text{distance})\# \text{Female}} = -0.0359$ ,  $p\text{-value} < 0.001$ ). Thus,

our conjecture H1 is also confirmed for the investors' decision about the amount invested. The coefficient of the interaction term *ln(distance)#TMT\_Female* is negative and significant at the 10% level. This finding suggests that female-led ventures tend to be more negatively affected by investors' local bias relative to their counterparts. Hypothesis H2 also holds for the amounts invested. Model 11 shows that female investors tend to invest higher amounts in female-led ventures, again confirming the presence of gender-related homophily in equity crowdfunding.

In Model 12, we add the three-way interaction term. We find that the coefficient of the interaction term between *ln(distance)* and *TMT\_Female* remains negative and significant at the 10% level. Moreover,

the coefficient of the three-way interaction term is positive but not significantly different from zero. These results suggest that female-led ventures are more negatively affected by local biases of crowd investors, regardless of whether the investments are made by female or male investors.

We conduct another robustness test to account for the fact that some domestic investors in our dataset gave only vague information regarding their location, providing not the name of the city they live in, but only the name of the federal state. Thus, we exclude these investors and their investment decisions and carry out all regression analyses again for this reduced sample. The regression results are presented in Appendix 5 and confirm our previous results for all variables of interest. In particular, the more negative effect of local bias on female-led ventures persists, even in the presence of homophily.

Next, to account for a potential influence of investments from the entrepreneur's friends and family members, we exclude for each venture investments made in the first three days of the campaign. This removes about 28.7% of the investments made by domestic investors from the analysis, leading to a reduced sample of 36,665 domestic investments and 96,570 investment decisions. We carry out the regression analyses again with this reduced sample. As Appendix 6 shows, Model 16 confirms that geographical distance has a significant negative effect on the investment decision and female investors are less likely to invest in equity crowdfunding. The results of Model 17 for  $\ln(\text{distance}) \# \text{TMT\_Female}$  and  $\text{TMT\_Female}$  are also consistent with those for the full sample. Female investors exhibit higher distance sensitivity than male investors, and the difference is significant at the 10% level. However, examining the post-SIPA subsample, we find that this difference in distance sensitivity more pronounced and significant at the 1% level (see Model 20 for details). The results for the post-SIPA subsample thus provide strong support for our conjectures.

Finally, we corroborate our initial assumptions that foreign investors do not exhibit significant differences in distance sensitivity when evaluating female-led ventures and that local biases with respect to German ventures should be independent of the foreign investor's gender. We conduct a regression analysis of 18,837 investment decisions made by 2372 foreign investors.<sup>15</sup> The results indicate that foreign investors

exhibit a significant preference for geographically closer ventures in their investment decisions and that female foreign investors are not more prone to this behavioural bias than their male peers. Moreover, we find that the interaction term between  $\ln(\text{distance})$  and  $\text{TMT\_Female}$  is negative but not statistically significant, indicating that investors from abroad do not show a similar distance sensitivity as domestic investors when it comes to financing female entrepreneurs.

Summarizing the results of our robustness tests, we find that our findings from the main analysis based on the domestic investment sample are robust and support both hypotheses. Domestic investors exhibit a substantial local bias. In particular, female investors are more susceptible to this behavioural distortion than male investors. Ventures with at least one female TMT member are more likely to receive capital from female domestic investors, indicating the existence of gender homophily. Moreover, these ventures would also benefit more from greater geographic proximity to investors than ventures with an all-male TMT.

## 5 Conclusion

Employing investment data from the German platform Companisto, we investigated the presence of a local bias among investors in the equity crowdfunding market. Our results suggest that geographic proximity plays a crucial role in the investment decisions made by domestic investors and that its effect tends to differ substantially between male and female domestic investors. We detected a stronger local bias in investments made by female domestic investors. Moreover, we showed that ventures with female managing directors would have achieved better funding results had they been located geographically closer to investors. In particular, this applies in the case of female investors investing in ventures with females on the TMT, indicating the presence of gender-related homophily in equity crowdfunding.

The contribution of our paper is threefold: First, it contributes to the growing literature on equity crowdfunding from a supply-side perspective. The majority of existing studies on equity crowdfunding focus on

<sup>15</sup> See Appendix 7 for detailed results.



the capital demand side—ventures launching funding campaigns, for instance by investigating the success factors of funding campaigns, post-campaign performance, and the democratization of entrepreneurs' access to capital. However, only few studies focus on the investment decisions made by crowd investors. Our paper contributes to the literature by examining factors influencing these decisions and their relevance for early-stage venture financing. Second, our paper sheds light on one particular behavioural aspect in equity crowdfunding: investors' preference for geographically closer ventures. We show that the individual investments made in equity crowdfunding campaigns are subject to a local bias that appears not only robust to, but actually exacerbated by, a significant change in the German regulatory environment, namely the introduction of SIPA. Third, our paper contributes to the literature on gender differences in early-stage venture financing. On the supply side, we identified a difference in local biases between female and male investors and also documented the existence of gender-related homophily. On the demand side, we showed that ventures with female managing directors tend to suffer more from investors' local biases than ventures with an all-male top management team.

Our findings have significant policy, managerial, and practical implications. They are of special relevance to policymakers and online platforms aiming at improving the efficiency of early-stage firm financing in the sense that they highlight the importance of the information environment for investors' capital allocation decisions. Moreover, they also provide capital-seeking entrepreneurs with some guidance for raising capital more effectively. When selecting a platform to launch a financing campaign on, entrepreneurs should take into account the location of the platforms' main investor base. In particular, our results suggest the robustness of the effect of geographic proximity in the presence of gender-related homophily and that ventures with females on the top management team may be able to raise more capital if they are located geographically closer to a greater number of potential female investors.

Our empirical analysis has some limitations to note. For one, it had to rely on an imperfect distance measure, that is, investors' self-reported location information. We are aware of the fact that some domestic investors may provide only vague location information (i.e. only the federal state or the country of residence). To account for a potential bias that could result from

this lack of detailed data, we excluded observations for which only the name of the country was available. Another limitation of our analysis is that it relied on data from only one crowdfunding platform. Simultaneous campaigns running on other platforms might divert investors' attention and affect their decisions in terms of whether and how much to invest in the campaigns included in our sample.

Thus, regarding future research, it would be interesting to see how our findings would change if data from other platforms and/or other countries were incorporated. Moreover, while our study indicates that the entrepreneurs' immediate social ties with investors (such as family and friends) are unlikely to be the main factor driving the local biases identified, it also shows that social embeddedness plays a part in explaining them. Thus, an in-depth analysis of other variables that were unobservable to us but might bias investors towards specific ventures, such as cultural or ethical factors, would be worth investigating to better understand what is driving the investment behaviour of crowd investors.

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**Data availability** The data analysed in this study stem from the website of the equity crowdfunding platform Companisto (<https://www.companisto.com/en>).

## Declarations

**Conflict of interest** The authors declare no competing interests.

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**Appendix 1. Definitions of variables**

Variable	Definition
<i>Investment decision- and investment-related variables</i>	
Investment	Dummy variable = 1 if an investment has taken place; 0 otherwise
ln(amount)	Natural logarithm of the amount of capital in each investment
ln(distance)	Natural logarithm of the Vincenty distance between the investor and the venture
Female	Dummy variable = 1 if the investment is from a female investor; 0 otherwise
Cum.#Investor	Number of investors who have invested in the venture by one day prior to each investment decision
Cum.Amount%target	Amount of capital accumulated by the venture up to one day prior to each investment decision
#Available ventures	Number of all the ventures available on the platform in the period four weeks before and four weeks after each individual investment
Weekday	Categorical variable; 7 weekdays, value from 0 Sunday to 6 Saturday
Month	Categorical variable; 12 months; value from 1 January to 12 December
Year	Categorical variable; value from 2012 to 2019
<i>Investor-related variables</i>	
Investor region	Categorical variable; the investor is located in one of the 38 regions (the NUTS 2 level); value from 1 (DE11) to 38 (DEG0)
Foreign	Dummy variable = 0 if the investor is living in Germany; 1 otherwise
#Ventures invested	Number of ventures individual investor has invested on Companisto over the whole sample period

Variable	Definition
Total amount	Amount of capital individual investor has invested on Companisto over the whole sample period, expressed in thousands of euros
Decile_Total amount	Categorical variable; investors are classified into deciles based on the amount of capital they have invested on Companisto over the whole sample period
<i>Venture-related variables</i>	
TMT_Female	Dummy variable = 1 if at least one female in TMT (founder and managing directors); 0 otherwise
TMT_Size	Number of founders and managing directors
TMT_Dr	Dummy variable = 1 if at least one TMT member holds a doctorate; 0 otherwise
TMT_MBA	Dummy variable = 1 if at least one TMT member holds an MBA degree; 0 otherwise
Company age	The number of years the venture has developed
Stage_Seed/Early	Dummy variable = 1 if the venture is classified by Companisto as in seed or early stage; 0 otherwise
Software IT	Dummy variable = 1 if the venture belongs to the software/IT sector; 0 otherwise
GmbH	Dummy variable = 1 if the venture takes the form of GmbH (limited liability company); 0 otherwise
Financial info	Dummy variable = 1 if financial reports are available on Bundesanzeiger for at least one of the two years prior to the campaign; 0 otherwise
Government loan	Dummy variable = 1 if the venture has received a government loan before campaign start; 0 otherwise
Award	Dummy variable = 1 if the venture has received awards before campaign start; 0 otherwise

Variable	Definition	Variable	Definition
Patent	Dummy variable = 1 if the venture owns patents or has submitted patent applications before campaign start; 0 otherwise	Share	Share offered to investors through equity crowdfunding campaign, value between 0 and 1
EarlyCI	Dummy variable = 1 if the venture launches a follow-up campaign; 0 otherwise	FI_Profit-participating loan	Dummy variable = 1 if profit-participating loan is employed as financing instrument; 0 otherwise
EarlyInvestors	Dummy variable = 1 if the venture has received capital from external investors (such as business angels and venture capital companies) before campaign start; 0 otherwise	Co-Financing	Dummy variable = 1 if the campaign is simultaneously co-invested by professional investors; 0 otherwise
Offline activity	Dummy variable = 1 if the venture has conducted specific local offline activities (such as open house days) or its campaign has been covered in local news media before the end of the campaign; 0 otherwise	Description length_thousand	Number of characters to describe the project in thousands; descriptions under the overview and team tabs; in case the project is described only in German language, Google translator is used for translation
Big city	Categorical variable; whether the venture is located in one of the following five cities: Berlin, Hamburg, Frankfurt am Main, Munich, Cologne; value from 0 to 5	No videos	Number of videos about the project posted on the campaign page
<i>Campaign-related variables</i>		SIPA	Dummy variable = 1 if the campaign started after the introduction of the Small Investor Protection Act (in German: Kleinanlegerschutzgesetz) on 3 July 2015; 0 otherwise
Target	Funding target in millions of euros		
Average target	Funding target set by ventures that operate in the same industry and have launched campaigns in the past 12 months; in millions of euros		

## Appendix 2. Sample selection

Step	No of projects	No of investors	No of investments	Reason
1	104			Of 107 campaigns listed on the platform on 17 May 2019, two are still ongoing on 17 May 2019 (“vanilla bean” and “KoRo2”), one campaign (“WIE MÄNNER ÜBER FRAUEN REDEN”) is about producing a film. → excluded
2	100			No information about investors in four campaigns → excluded
3	97	20,623	69,220	The number of investor names we scraped for three campaigns does not equal the number of investors given by Companisto on the campaign page. → excluded
4	97	20,623	64,256	2140 and 1412 investors pledge capital twice and three times in a certain project, respectively. All follow-on investments of each investor took place on the same date. → Follow-on investments of each investor are merged with his/her first investment
5	97	20,619	64,250	Investment date as “0001–11–30” → excluded
6	97	20,378	63,133	“gender guesser” results: male / female → kept
7	97	20,308	62,810	No investor location information → excluded
8	97	19,304	58,343	Company investors and late investments → excluded
9	97	16,933	51,423	Investments from foreign investors → excluded

## Appendix 3 Descriptive statistics

Panel 1: Investment decision-related variables

	Mean	Median	Std. dev	Min	Max
Investment	0.377	0	0.485	0	1
Amount (in thousands of €)	0.128	0	0.278	0	1
Distance (in thousands of km)	0.337	0.366	0.173	0.005	0.600
ln(distance)	5.462	5.904	1.200	1.655	6.397
Female	0.105	0	0.307	0	1
Cum.#Investors	197.158	116	234.323	0	768
Cum. Amount%target	0.249	0.120	0.302	0	0.939
#Available ventures	3.480	3	1.085	2	6
Sunday	0.089	0	0.285	0	1
Monday	0.168	0	0.374	0	1
Tuesday	0.232	0	0.422	0	1
Wednesday	0.155	0	0.362	0	1
Thursday	0.147	0	0.354	0	1
Friday	0.128	0	0.334	0	1
Saturday	0.080	0	0.271	0	1
January	0.111	0	0.314	0	1
February	0.084	0	0.277	0	1
March	0.076	0	0.266	0	1
April	0.066	0	0.248	0	1
May	0.064	0	0.245	0	1
June	0.086	0	0.280	0	1
July	0.071	0	0.257	0	1
August	0.078	0	0.268	0	1
September	0.102	0	0.303	0	1
October	0.096	0	0.294	0	1
November	0.091	0	0.288	0	1
December	0.076	0	0.265	0	1
2012	0.032	0	0.177	0	1
2013	0.171	0	0.376	0	1
2014	0.082	0	0.274	0	1
2015	0.154	0	0.361	0	1
2016	0.236	0	0.424	0	1
2017	0.196	0	0.397	0	1
2018	0.126	0	0.332	0	1
2019	0.004	0	0.059	0	1

This panel contains descriptive statistics of the investment decision-related variables. 136,507 investment decisions are included in the sample. See Appendix 1 for detailed variable definitions

Panel 2: Investment-related variables

	Mean	Median	Std. dev	Min	Max
Amount (in thousands of €)	0.341	0.200	0.365	0.004	1
ln(amount)	4.967	5.298	1.560	1.386	6.908
Distance (in thousands of km)	0.329	0.360	0.176	0.005	0.600
ln(distance)	5.396	5.886	1.267	1.655	6.397
Female	0.105	0	0.307	0	1
Cum.#Investors	344.794	316	255.165	0	768
Cum. Amount%target	0.410	0.364	0.313	0	0.939
#Available ventures	3.195	3	1.069	2	6
Sunday	0.093	0	0.291	0	1
Monday	0.166	0	0.372	0	1
Tuesday	0.220	0	0.415	0	1
Wednesday	0.156	0	0.363	0	1
Thursday	0.152	0	0.359	0	1
Friday	0.130	0	0.337	0	1
Saturday	0.082	0	0.275	0	1
January	0.097	0	0.297	0	1
February	0.080	0	0.272	0	1
March	0.079	0	0.270	0	1
April	0.072	0	0.258	0	1
May	0.067	0	0.250	0	1
June	0.093	0	0.290	0	1
July	0.078	0	0.268	0	1
August	0.076	0	0.265	0	1
September	0.090	0	0.286	0	1
October	0.096	0	0.295	0	1
November	0.087	0	0.282	0	1
December	0.084	0	0.278	0	1
2012	0.043	0	0.204	0	1
2013	0.166	0	0.372	0	1
2014	0.125	0	0.331	0	1
2015	0.165	0	0.371	0	1
2016	0.194	0	0.396	0	1
2017	0.179	0	0.383	0	1
2018	0.120	0	0.324	0	1
2019	0.008	0	0.090	0	1

This panel contains descriptive statistics of the investment-related variables. 51,423 individual investments are included in the sample. See Appendix 1 for detailed variable definitions

Panel 3: Geographical distribution of investments

Investments by state	Freq	%	Cum. %
Baden-Württemberg	7632	14.84	14.84
Bavaria (Bayern)	8763	17.04	31.88
Berlin	5921	11.51	43.40
Brandenburg	1205	2.34	45.74
Bremen	376	0.73	46.47
Hamburg	2612	5.08	51.55
Hesse (Hessen)	4295	8.35	59.90
Lower Saxony (Niedersachsen)	3995	7.77	67.67
Mecklenburg-Vorpommern	473	0.92	68.59
North Rhine-Westphalia (Nordrhein-Westfalen)	8891	17.29	85.88
Rhineland-Palatinate (Rheinland-Pfalz)	1648	3.20	89.09
Saarland	359	0.70	89.78
Saxony (Sachsen)	1995	3.88	93.66
Saxony-Anhalt (Sachsen-Anhalt)	653	1.27	94.93
Schleswig-Holstein	1671	3.25	98.18
Thuringia (Thüringen)	934	1.82	100.00
Total	51,423	100.00	

This panel presents the geographical distribution of the investments. 51,423 individual investments are included in the sample. See Appendix 1 for detailed variable definitions

Panel 4: Investor-related variables

	Mean	Median	Std. dev	Min	Max
Female	0.167	0	0.373	0	1
#Ventures invested	3.230	1	4.864	1	43
Total amount	1.863	0.450	3.829	0.040	22.500
Decile_Total amount	5.452	5	2.882	1	10
Baden-Württemberg	0.141	0	0.348	0	1
Bavaria (Bayern)	0.167	0	0.373	0	1
Berlin	0.145	0	0.352	0	1
Brandenburg	0.021	0	0.143	0	1
Bremen	0.009	0	0.094	0	1
Hamburg	0.053	0	0.224	0	1
Hesse (Hessen)	0.079	0	0.270	0	1
Lower Saxony (Niedersachsen)	0.073	0	0.261	0	1
Mecklenburg-Vorpommern	0.010	0	0.097	0	1
North Rhine-Westphalia (Nordrhein-Westfalen)	0.173	0	0.378	0	1

Panel 4: Investor-related variables

	Mean	Median	Std. dev	Min	Max
Rhineland-Palatinate (Rheinland-Pfalz)	0.032	0	0.177	0	1
Saarland	0.008	0	0.090	0	1
Saxony (Sachsen)	0.033	0	0.178	0	1
Saxony-Anhalt (Sachsen-Anhalt)	0.012	0	0.110	0	1
Schleswig-Holstein	0.029	0	0.167	0	1
Thuringia (Thüringen)	0.015	0	0.122	0	1

This panel contains descriptive statistics of the investor-related variables. 16,933 domestic investors are included in the sample. See Appendix 1 for detailed variable definitions

Panel 5: Venture-related and campaign-related variables

	Mean	Median	Std. dev	Min	Max
<i>Venture-related variables</i>					
TMT_Female	0.134	0	0.342	0	1
TMT_Size	2.196	2	0.943	1	4
TMT_Dr	0.206	0	0.407	0	1
TMT_MBA	0.124	0	0.331	0	1
Company age	3.598	2	4.502	0	18
Stage_Seed/Early	0.928	1	0.260	0	1
Software IT	0.247	0	0.434	0	1
GmbH	0.856	1	0.353	0	1
Financial info	0.340	0	0.476	0	1
Government loan	0.124	0	0.331	0	1
Award	0.289	0	0.455	0	1
Patent	0.155	0	0.363	0	1
EarlyCI	0.093	0	0.292	0	1
EarlyInvestors	0.742	1	0.440	0	1
Offline activity	0.412	0	0.495	0	1

Panel 5: Venture-related and campaign-related variables

	Mean	Median	Std. dev	Min	Max
Big city	0.990	1	1.141	0	5
Berlin	0.474	0	0.502	0	1
Hamburg	0.072	0	0.260	0	1
Frankfurt am Main	0.010	0	0.102	0	1
Munich	0.072	0	0.260	0	1
Cologne	0.010	0	0.102	0	1
Other cities	0.361	0	0.483	0	1
<i>Campaign-related variables</i>					
Target	0.547	0.400	0.498	0.100	2.150
Average target	0.497	0.500	0.320	0.100	1.250
Share	0.116	0.108	0.074	0	0.313
FI_Loan	0.062	0	0.242	0	1
FI_Profit-participating loan	0.845	1	0.363	0	1
FI_Silent partnership	0.082	0	0.277	0	1
FI_Share	0.010	0	0.102	0	1
Co-Financing	0.052	0	0.222	0	1
Description length_thousand	3.753	3.607	0.980	2.509	5.838
No videos	1.268	1	0.569	1	3
Year_campaign	2015.423	2016	1.892	2012	2018
2012	0.062	0	0.242	0	1
2013	0.175	0	0.382	0	1
2014	0.082	0	0.277	0	1
2015	0.144	0	0.353	0	1
2016	0.196	0	0.399	0	1
2017	0.175	0	0.382	0	1
2018	0.165	0	0.373	0	1

This panel contains descriptive statistics of the venture- and campaign-related variables. 97 ventures and campaigns are included in the sample. See Appendix 1 for detailed variable definitions



# Appendix 4 Tests for multicollinearity

## (1) Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Investment	1												
2 ln(distance)	-0.0425*	1											
3 #Ventures invested	0.0148*	0.0422*	1										
4 Total amount	-0.0093	0.0291*	0.2830*	1									
5 Cum.#Investor	0.4789*	-0.0072	-0.0848*	-0.0312*	1								
6 Cum.Amount%target	0.4044*	-0.0048	-0.0647*	-0.0217*	0.8053*	1							
7 #Available ventures	-0.2041*	0.0467*	0.0075	0.0118*	-0.0140*	0.0334*	1						
8 Company age	0.0558*	0.0141*	0.0026	0.0444*	0.1023*	0.0717*	0.0282*	1					
9 Target	0.0941*	0.0144*	-0.0215*	0.0492*	0.2189*	-0.0426*	0.0346*	0.3855*	1				
10 TMT_Size	0.0939*	-0.0578*	-0.0058	-0.0429*	0.1268*	0.0877*	-0.0664*	-0.3552*	-0.1566*	1			
11 Share	0.0376*	0.0083	-0.0161*	-0.0240*	0.0488*	-0.0427*	-0.0380*	-0.4363*	-0.1769*	0.1989*	1		
12 Description length_ thousand	0.0329*	-0.0831*	0.0128*	-0.0815*	0.0663*	0.0448*	-0.0249*	-0.2195*	-0.1271*	0.3183*	0.0819*	1	
13 No videos	0.0116*	0.0049	0.0225*	0.0050	0.0495*	-0.0019	0.0690*	-0.0100*	0.1785*	0.1444*	-0.1025*	0.0757*	1

\*denotes significance at the 5% level

## (2) VIF

Variable	VIF	$\sqrt{VIF}$	Tolerance	$R^2$
ln(distance)	1.01	1.01	0.987	0.013
#Ventures invested	1.10	1.05	0.910	0.090
Total amount	1.10	1.05	0.909	0.091
TMT_Size	1.30	1.14	0.767	0.233
Company age	1.58	1.26	0.632	0.368
Target	1.64	1.28	0.609	0.391
Average target	1.30	1.14	0.768	0.232
Share	1.33	1.15	0.755	0.246
No videos	1.25	1.12	0.800	0.201
Description length_ thousand	1.10	1.05	0.911	0.089
Cum.#Investor	3.84	1.96	0.261	0.739
Cum.Amount%target	3.57	1.89	0.280	0.720
#Available venture	1.05	1.03	0.951	0.049
Mean VIF	1.63			

### Appendix 5. Decisions made by investors with non-vague location information

	(13) Investment	(14) Investment	(15) Investment
ln(distance)	-0.0585**** [0.00417]	-0.0485**** [0.00464]	-0.0493**** [0.00469]
Female	-0.0215** [0.00968]	0.147*** [0.0469]	0.115** [0.0544]
TMT_Female	0.131**** [0.0146]	0.259**** [0.0523]	0.225**** [0.0568]
ln(distance)#Female		-0.0380**** [0.00870]	-0.0318*** [0.0101]
ln(distance)#TMT_Female		-0.0285*** [0.00926]	-0.0222** [0.0101]

	(13) Investment	(14) Investment	(15) Investment
TMT_Female#Female		0.181**** [0.0367]	0.360*** [0.131]
ln(distance)#TMT_Female#Female			-0.0348 [0.0243]
Other investment var.	Yes	Yes	Yes
Other investor var.	Yes	Yes	Yes
Other venture var.	Yes	Yes	Yes
Campaign var.	Yes	Yes	Yes
N	107218	107218	107218
Log pseudo-likelihood	-53036.886	-53000.901	-52998.538
P	0.000	0.000	0.000
AIC	106509.8	106449.8	106449.1
BIC	108598.8	108596.3	108614.7

This table shows regression results based on investment decisions made by investors who have disclosed their city of living on Companisto. Investors who left only the name of the federal state where they are living are excluded from the analysis. The regression analysis is conducted on a sample of 107,218 investment decisions made by 6330 domestic investors about investing in 97 ventures. We employ IV probit methods in all models with the decision whether to invest as the dependent variable. In all models, the campaign target is instrumented by the average of targets set by ventures that have launched an equity crowdfunding campaign in the past 12 months and operate in the same industry branch as the focal venture. The independent variables are defined in Appendix 1. Model 13 is the baseline model consisting of campaign, venture, investment and investor variables. Model 14 extends Model 13 by adding the interaction terms between each pair of distance, the investor's gender and the presence of female TMT members. Model 15 is our main model including all independent variables, the three interaction terms and the three-way interaction term. Investor region (the NUTS 2 level) fixed effects are included in all models. Heteroscedasticity-consistent (robust) standard errors, clustered at the investor level, are reported in parentheses. \*, \*\*, \*\*\* and \*\*\*\* denote significance at the 10%, 5%, 1% and 0.1% levels, respectively

## Appendix 6. Reduced sample

	(16)	(17)	(18)	(19)	(20)	(21)
	Investment	Investment	Investment	Investment	Investment	Investment
	Post-SIPA					
ln(distance)	−0.0256**** [0.00568]	−0.0121* [0.00638]	−0.0125* [0.00645]	−0.0374**** [0.00807]	−0.0186** [0.00911]	−0.0195** [0.00921]
Female	−0.0285* [0.0158]	0.0510 [0.0708]	0.0356 [0.0805]	−0.00331 [0.0220]	0.299*** [0.115]	0.256** [0.127]
TMT_Female	0.264**** [0.0188]	0.614**** [0.0755]	0.599**** [0.0818]	0.0650 [0.0416]	0.538**** [0.128]	0.500**** [0.137]
ln(distance)#Female		−0.0212* [0.0128]	−0.0184 [0.0146]		−0.0604*** [0.0206]	−0.0525** [0.0229]
ln(distance)#TMT_Female		−0.0694**** [0.0133]	−0.0667**** [0.0145]		−0.0895**** [0.0221]	−0.0826**** [0.0239]
TMT_Female#Female		0.210**** [0.0501]	0.287 [0.194]		0.163** [0.0799]	0.450 [0.327]
ln(distance)#TMT_Female#Female			−0.0147 [0.0353]			−0.0532 [0.0595]
Other investment var.	Yes	Yes	Yes	Yes	Yes	Yes
Other investor var.	Yes	Yes	Yes	Yes	Yes	Yes
Other venture var.	Yes	Yes	Yes	Yes	Yes	Yes
Campaign var.	Yes	Yes	Yes	Yes	Yes	Yes
N	96570	96570	96570	63978	63978	63978
Log pseudo-likelihood	−32969.937	−32918.688	−3914.959	12569.514	12590.801	1291.21
AIC	66375.9	66285.4	66281.9	−24721.0	−24751.6	−24748.4
BIC	68442.1	68408.5	68424.0	−22826.2	−22802.3	−22781.0
P	0.000	0.000	0.000	0.000	0.000	0.000

This table reports the results of our third robustness check aiming to control for investment decisions made by “family and friends”. In Models 16–18, the regression analysis is conducted on a sample of 96,570 investment decisions from 16,933 domestic investors in 97 ventures. In Models 19–21, the analysis is conducted on the post-SIPA subsample, which consists of 63,978 investment decisions. In all models, we employ IV probit methods and instrument campaign targets with the average target set by ventures that have launched an equity crowdfunding campaign in the past 12 months and operate in the same industry branch. The dependent variable is the investment dummy in all models. The independent variables are defined in Appendix 1. Models 16 and 19 are the baseline models consisting of venture-, campaign-, investment- and investor-related variables. Models 17 and 20 extend Models 16 and 19 by adding the interaction terms between each pair of ln(distance), the investor’s gender *Female* and the presence of female TMT members *TMT\_Female*, respectively. Models 18 and 21 are our main models including all independent variables, all three interaction terms and the three-way interaction term. Investor region (the NUTS 2 level) fixed effects are included in all models. Heteroscedasticity-consistent (robust) standard errors, clustered at the investor level, are reported in parentheses. \*, \*\*, \*\*\* and \*\*\*\* denote significance at the 10%, 5%, 1% and 0.1% levels, respectively

## Appendix 7. Results based on investments made by foreign investors

	(22) Investment	(23) Investment	(24) Investment
ln(distance)	−0.0395*** [0.0130]	−0.0369** [0.0153]	−0.0336** [0.0154]
Female	0.0273 [0.0250]	0.273 [0.277]	0.536 [0.326]
TMT_Female	0.157**** [0.0360]	0.117 [0.256]	0.263 [0.270]
ln(distance)#Female		−0.0404 [0.0420]	−0.0811 [0.0499]
ln(distance)#TMT_Female		0.00468 [0.0396]	−0.0184 [0.0419]
TMT_Female#Female		0.104 [0.101]	−1.610* [0.937]
ln(distance)#TMT_Female#Female			0.267* [0.144]
Other investment var.	Yes	Yes	Yes
Other investor var.	Yes	Yes	Yes
Other venture var.	Yes	Yes	Yes
Campaign var.	Yes	Yes	Yes
N	18837	18837	18837
Log pseudo-likelihood	−9044.390	−9043.440	−9042.970
AIC	18376.8	18386.9	18387.9
BIC	19506.3	19563.4	19580.2
P	0.000	0.000	0.000

This table presents regression results based on a sample of 18,837 decisions made by 2372 foreign investors about investing in 97 ventures. Of these decisions, 6918 investments took place. The IV probit method is employed in all models with the investment dummy as the dependent variable. The independent variables are defined in Appendix 1. Model 22 is the baseline model consisting of venture, campaign, investment and investor variables. Model 23 extends Model 22 by adding the interaction terms between each pair of the distance variable, the investor gender variable and the female TMT member variable. Model 24 is our main model including all independent variables, all three interaction terms and the three-way interaction term. Investor region (the NUTS 2 level) fixed effects are included in all models. Heteroscedasticity-consistent (robust) standard errors, clustered at the investor level, are reported in parentheses. \*, \*\*, \*\*\* and \*\*\*\* denote significance at the 10%, 5%, 1% and 0.1% levels, respectively

## References

- Abreu, M., & Mendes, V. (2010). Financial literacy and portfolio diversification. *Quantitative Finance*, 10(5), 515–528. <https://doi.org/10.1080/14697680902878105>
- Agrawal, A., Catalini, C., & Goldfarb, A. (2015). Crowdfunding: Geography, social networks, and the timing of investment decisions. *Journal of Economics & Management Strategy*, 24(2), 253–274. <https://doi.org/10.1111/jems.12093>
- Ahlers, G. K., Cumming, D., Günther, C., & Schweizer, D. (2015). Signaling in equity crowdfunding. *Entrepreneurship Theory and Practice*, 39(4), 955–980. <https://doi.org/10.1111/etap.12157>
- Andrieu, G., Le Pendeven, B., & Leboeuf, G. (2021). Equity crowdfunding success for female entrepreneurs: French evidence. *Economics Bulletin*, 41(2), 417–431. Retrieved June 20, 2024, from <https://hal.science/hal-03227572>
- Bapna, S., & Ganco, M. (2021). Gender gaps in equity crowdfunding: Evidence from a randomized field experiment. *Management Science*, 67(5), 2679–2710. <https://doi.org/10.1287/mnsc.2020.3644>
- Bates, T. (1990). Entrepreneur human capital inputs and small business longevity. *Review of Economics and Statistics*, 72(4), 551–559. <https://doi.org/10.2307/2109594>
- Battaglia, F., Manganiello, M., & Ricci, O. (2021). Is equity crowdfunding the land of promise for female entrepreneurship? *PIJ*, 6(1), 12–36. <https://doi.org/10.19245/25.05.pij.6.1.3>
- Benartzi, S. (2001). Excessive extrapolation and the allocation of 401(k) accounts to company stock. *The Journal of Finance*, 56(5), 1747–1764. <https://doi.org/10.1111/0022-1082.00388>
- Blaseg, D., Cumming, D., & Koetter, M. (2021). Equity crowdfunding: High-quality or low-quality entrepreneurs? *Entrepreneurship Theory and Practice*, 45(3), 505–530. <https://doi.org/10.1177/1042258719899427>
- Burtch, G., Ghose, A., & Wattal, S. (2014). Cultural differences and geography as determinants of online prosocial lending. *MIS Quarterly*, 38(3), 773–794. <https://doi.org/10.25300/MISQ/2014/38.3.07>
- Byrne, K. A., & Worthy, D. A. (2015). Gender differences in reward sensitivity and information processing during decision-making. *Journal of Risk and Uncertainty*, 50, 55–71. <https://doi.org/10.1007/s11166-015-9206-7>
- Chan, K., Covrig, V., & Ng, L. (2005). What determines the domestic bias and foreign bias? Evidence from mutual fund equity allocations worldwide. *The Journal of Finance*, 60(3), 1495–1534. <https://doi.org/10.1111/j.1540-6261.2005.768.1.x>
- Coakley, J., & Lazos, A. (2021). New developments in equity crowdfunding: A review. *Review of Corporate Finance (Fintech Special Issue)*, 1(3–4), 341–405. <https://doi.org/10.1561/114.00000008>
- Coakley, J., Lazos, A., & Liñares-Zegarra, J. M. (2022). Equity crowdfunding founder teams: Campaign success and venture failure. *British Journal of Management*, 33, 286–305. <https://doi.org/10.1111/1467-8551.12494>
- Coval, J. D., & Moskowitz, T. J. (1999). Home bias at home: Local equity preference in domestic portfolios. *The*

- Journal of Finance*, 54(6), 2045–2073. <https://doi.org/10.1111/0022-1082.00181>
- Coval, J. D., & Moskowitz, T. J. (2001). The geography of investment: Informed trading and asset prices. *Journal of Political Economy*, 109(4), 811–841. <https://doi.org/10.1086/322088>
- Crosetto, P., & Regner, T. (2014). *Crowdfunding: Determinants of success and funding dynamics* (Jena Economic Research Paper No. 2014–035). Friedrich Schiller University Jena and Max Planck Institute of Economics, Jena, Germany. Retrieved June 20, 2024, from <https://hdl.handle.net/10419/108542>
- Croson, R., & Gneezy, U. (2009). Gender differences in preferences. *Journal of Economic Literature*, 47(2), 448–474. <https://doi.org/10.1257/jel.47.2.448>
- Cumming, D., & Dai, N. (2010). Local bias in venture capital investments. *Journal of Empirical Finance*, 17(3), 362–380. <https://doi.org/10.1016/j.jempfin.2009.11.001>
- Cumming, D., Meoli, M., & Vismara, S. (2019). Investors' choices between cash and voting rights: Evidence from dual-class equity crowdfunding. *Research Policy*, 48(8), 103740. <https://doi.org/10.1016/j.respol.2019.01.014>
- Cumming, D., Meoli, M., & Vismara, S. (2021). Does equity crowdfunding democratize entrepreneurial finance? *Small Business Economics*, 56, 533–552. <https://doi.org/10.1007/s11187-019-00188-z>
- Cumming, D., Hornuf, L., Karami, M., & Schweizer, D. (2023). Disentangling crowdfunding from fraudfunding. *Journal of Business Ethics*, 182, 1103–1128. <https://doi.org/10.1007/s10551-021-04942-w>
- Darley, W. K., & Smith, R. E. (1995). Gender differences in information processing strategies: An empirical test of the selectivity model in advertising response. *Journal of Advertising*, 24(1), 41–56. <https://doi.org/10.1080/00913367.1995.10673467>
- Eddleston, K. A., Ladge, J. J., Mitteness, C., & Balachandra, L. (2016). Do you see what I see? Signaling effects of gender and firm characteristics on financing entrepreneurial ventures. *Entrepreneurship Theory and Practice*, 40(3), 489–514. <https://doi.org/10.1111/etap.12117>
- Eisenhardt, K. M., & Schoonhoven, C. B. (1990). Organizational growth: Linking founding team, strategy, environment, and growth among us semiconductor ventures, 1978–1988. *Administrative Science Quarterly*, 35(3), 504–529. <https://doi.org/10.2307/2393315>
- Feng, L., & Seasholes, M. S. (2004). Correlated trading and location. *The Journal of Finance*, 59(5), 2117–2144. <https://doi.org/10.1111/j.1540-6261.2004.00694.x>
- Florida, R., & Smith, D. F., Jr. (1993). Venture capital formation, investment, and regional industrialization. *Annals of the Association of American Geographers*, 83(3), 434–451. <https://doi.org/10.1111/j.1467-8306.1993.tb01944.x>
- Geiger, M., & Oranburg, S. C. (2018). Female entrepreneurs and equity crowdfunding in the US: Receiving less when asking for more. *Journal of Business Venturing Insights*, 10, e00099. <https://doi.org/10.1016/j.jbvi.2018.e00099>
- Giudici, G., Guerini, M., & Rossi-Lamastra, C. (2018). Reward-based crowdfunding of entrepreneurial projects: The effect of local altruism and localized social capital on proponents' success. *Small Business Economics*, 50(2), 307–324. <https://doi.org/10.1007/s11187-016-9830-x>
- Goethner, M., Hornuf, L., & Regner, T. (2021). Protecting investors in equity crowdfunding: An empirical analysis of the small investor protection act. *Technological Forecasting and Social Change*, 162, 120352. <https://doi.org/10.1016/j.techfore.2020.120352>
- Graham, J. R., Harvey, C. R., & Huang, H. (2009). Investor competence, trading frequency, and home bias. *Management Science*, 55(7), 1094–1106. <https://doi.org/10.1287/mnsc.1090.1009>
- Greenberg, J., & Mollick, E. (2017). Activist choice homophily and the crowdfunding of female founders. *Administrative Science Quarterly*, 62(2), 341–374. <https://doi.org/10.1177/0001839216678847>
- Grinblatt, M., & Keloharju, M. (2001). How distance, language, and culture influence stockholdings and trades. *The Journal of Finance*, 56(3), 1053–1073. <https://doi.org/10.1111/0022-1082.00355>
- Groza, M. P., Groza, M. D., & Barral, L. M. (2020). Women backing women: The role of crowdfunding in empowering female consumer-investors and entrepreneurs. *Journal of Business Research*, 117, 432–442. <https://doi.org/10.1016/j.jbusres.2020.06.013>
- Günther, C., Johan, S., & Schweizer, D. (2018). Is the crowd sensitive to distance?—How investment decisions differ by investor type. *Small Business Economics*, 50(2), 289–305. <https://doi.org/10.1007/s11187-016-9834-6>
- Haleblian, J., & Finkelstein, S. (1993). Top management team size, CEO dominance, and firm performance: The moderating roles of environmental turbulence and discretion. *Academy of Management Journal*, 36(4), 844–863. <https://doi.org/10.5465/256761>
- Hornuf, L., & Schwenbacher, A. (2018). Market mechanisms and funding dynamics in equity crowdfunding. *Journal of Corporate Finance*, 50, 556–574. <https://doi.org/10.1016/j.jcorpfin.2017.08.009>
- Hornuf, L., Schmitt, M., & Stenzhorn, E. (2022). The local bias in equity crowdfunding: Behavioral anomaly or rational preference? *Journal of Economics & Management Strategy*, 31(3), 693–733. <https://doi.org/10.1111/jems.12475>
- Hornuf, L., & Schwenbacher, A. (2015, September 6–9). *Funding dynamics in crowdinvesting* [Paper presentation]. Annual Conference of the Verein fuer Socialpolitik 2015: Economic Development - Theory and Policy, Session: Financial Economics II, No. B10-V3, Muenster, Germany. Retrieved June 20, 2024, from <https://www.econstor.eu/handle/10419/112969>
- Horvat, E. A., & Papamarkou, T. (2017). Gender differences in equity crowdfunding. In *Proceedings of the AAAI Conference on Human Computation and Crowdsourcing*, 5, 51–60. <https://doi.org/10.1609/hcomp.v5i1.13319>
- Hsu, D. H. (2007). Experienced entrepreneurial founders, organizational capital, and venture capital funding. *Research Policy*, 36(5), 722–741. <https://doi.org/10.1016/j.respol.2007.02.022>
- Huang, Y., Qiu, H., & Wu, Z. (2016). Local bias in investor attention: Evidence from China's internet stock message boards. *Journal of Empirical Finance*, 38, 338–354. <https://doi.org/10.1016/j.jempfin.2016.07.007>
- Huberman, G. (2001). Familiarity breeds investment. *Review of Financial Studies*, 14(3), 659–680. <https://doi.org/10.1093/rfs/14.3.659>

- Ivković, Z., & Weisbenner, S. (2005). Local does as local is: Information content of the geography of individual investors' common stock investments. *The Journal of Finance*, 60(1), 267–306. <https://doi.org/10.1111/j.1540-6261.2005.00730.x>
- Ivković, Z., Sialm, C., & Weisbenner, S. (2008). Portfolio concentration and the performance of individual investors. *Journal of Financial and Quantitative Analysis*, 43(3), 613–655. <https://doi.org/10.1017/S0022109000004233>
- Jiang, J., Liu, Y. J., & Lu, R. (2020). Social heterogeneity and local bias in peer-to-peer lending—Evidence from China. *Journal of Comparative Economics*, 48(2), 302–324. <https://doi.org/10.1016/j.jce.2019.11.001>
- Johnson, M. A., Stevenson, R. M., & Letwin, C. R. (2018). A woman's place is in the... Startup! Crowdfunder judgments, implicit bias, and the stereotype content model. *Journal of Business Venturing*, 33(6), 813–831. <https://doi.org/10.1016/j.jbusvent.2018.04.003>
- Lin, M., & Viswanathan, S. (2016). Home bias in online investments: An empirical study of an online crowdfunding market. *Management Science*, 62(5), 1393–1414. <https://doi.org/10.1287/mnsc.2015.2206>
- Ling, Y., Zhao, H., & Baron, R. A. (2007). Influence of founder—CEOs' personal values on firm performance: Moderating effects of firm age and size. *Journal of Management*, 33(5), 673–696. <https://doi.org/10.1177/0149206307305564>
- Lütje, T., & Menkhoff, L. (2007). What drives home bias? Evidence from fund managers' views. *International Journal of Finance & Economics*, 12(1), 21–35. <https://doi.org/10.1002/ijfe.309>
- Malaga, R., Mamonov, S., & Rosenblum, J. (2018). Gender difference in equity crowdfunding: An exploratory analysis. *International Journal of Gender and Entrepreneurship*, 10(4), 332–343. <https://doi.org/10.1108/IJGE-03-2018-0020>
- Malmström, M., Voikane, A., Johansson, J., & Wincent, J. (2020). What do they think and what do they say? Gender bias, entrepreneurial attitude in writing and venture capitalists' funding decisions. *Journal of Business Venturing Insights*, 13, e00154. <https://doi.org/10.1016/j.jbvi.2019.e00154>
- Marlow, S., & Patton, D. (2005). The financing of small businesses: Female experiences and strategies. In S. L. Fielden & M. J. Davidson (Eds.), *International Handbook of Women and Small Business Entrepreneurship* (pp. 66–77). Edward Elgar Publishing, Cheltenham, UK. <https://doi.org/10.4337/9781845425586.00014>
- Massa, M., & Simonov, A. (2006). Hedging, familiarity and portfolio choice. *Review of Financial Studies*, 19(2), 633–685. <https://doi.org/10.1093/rfs/hhj013>
- McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, 27(1), 415–444. <https://doi.org/10.1146/annurev.soc.27.1.415>
- Mendes-Da-Silva, W., Rossoni, L., Francisco, E., & Gattaz, C. C. (2019). Geographic distance and reward crowdfunding donation. In W. Mendes-Da-Silva (Ed.), *Individual Behaviors and Technologies for Financial Innovations* (pp. 189–214). Springer, Cham, Switzerland. [https://doi.org/10.1007/978-3-319-91911-9\\_9](https://doi.org/10.1007/978-3-319-91911-9_9)
- Meyers-Levy, J., & Maheswaran, D. (1991). Exploring differences in males' and females' processing strategies. *Journal of Consumer Research*, 18(1), 63–70. <https://doi.org/10.1086/209241>
- Mohammadi, A., & Shafi, K. (2018). Gender differences in the contribution patterns of equity-crowdfunding investors. *Small Business Economics*, 50, 275–287. <https://doi.org/10.1007/s11187-016-9825-7>
- Mollick, E. (2014). The dynamics of crowdfunding: An exploratory study. *Journal of Business Venturing*, 29(1), 1–16. <https://doi.org/10.1016/j.jbusvent.2013.06.005>
- Mollick, E., & Robb, A. (2016). Democratizing innovation and capital access: The role of crowdfunding. *California Management Review*, 58(2), 72–87. <https://doi.org/10.1525/cmr.2016.58.2.72>
- Nelson, T. (2003). The persistence of founder influence: Management, ownership, and performance effects at initial public offering. *Strategic Management Journal*, 24(8), 707–724. <https://doi.org/10.1002/smj.328>
- Niemand, T., Angerer, M., Thies, F., Kraus, S., & Hebenstreit, R. (2018). Equity crowdfunding across borders: A conjoint experiment. *International Journal of Entrepreneurial Behavior & Research*, 24(4), 911–932. <https://doi.org/10.1108/IJEBR-07-2017-0256>
- Pool, V. K., Stoffman, N., & Yonker, S. E. (2012). No place like home: Familiarity in mutual fund manager portfolio choice. *Review of Financial Studies*, 25(8), 2563–2599. <https://doi.org/10.1093/rfs/hhs075>
- Powell, W. W., Koput, K. W., Bowie, J. I., & Smith-Doerr, L. (2002). The spatial clustering of science and capital: Accounting for biotech firm-venture capital relationships. *Regional Studies*, 36(3), 291–305. <https://doi.org/10.1080/00343400220122089>
- Prokop, J., & Wang, D. (2022). Is there a gender gap in equity-based crowdfunding? *Small Business Economics*, 59(3), 1219–1244. <https://doi.org/10.1007/s11187-021-00574-6>
- Rossi, A., Vanacker, T. R., & Vismara, S. (2021). Equity crowdfunding: New evidence from US and UK markets. *Review of Corporate Finance*, 1(3–4), 407–453. <https://doi.org/10.1561/114.000000009>
- Seasholes, M. S., & Zhu, N. (2010). Individual investors and local bias. *The Journal of Finance*, 65(5), 1987–2010. <https://doi.org/10.1111/j.1540-6261.2010.01600.x>
- Sialm, C., Sun, Z., & Zheng, L. (2020). Home bias and local contagion: Evidence from funds of hedge funds. *Review of Financial Studies*, 33(10), 4771–4810. <https://doi.org/10.1093/rfs/hhz138>
- Strong, N., & Xu, X. (2003). Understanding the equity home bias: Evidence from survey data. *Review of Economics and Statistics*, 85(2), 307–312. <https://doi.org/10.1162/003465303765299837>
- Tang, Z., Kreiser, P. M., Marino, L., & Weaver, K. M. (2010). Exploring proactiveness as a moderator in the process of perceiving industrial munificence: A field study of SMEs



- in four countries. *Journal of Small Business Management*, 48(2), 97–115. <https://doi.org/10.1111/j.1540-627X.2010.00288.x>
- Van Nieuwerburgh, S., & Veldkamp, L. (2009). Information immobility and the home bias puzzle. *The Journal of Finance*, 64(3), 1187–1215. <https://doi.org/10.1111/j.1540-6261.2009.01462.x>
- Vincenty, T. (1975). Direct and inverse solutions of geodesics on the ellipsoid with application of nested equations. *Survey Review*, 23(176), 88–93. <https://doi.org/10.1179/sre.1975.23.176.88>
- Vismara, S. (2016). Equity retention and social network theory in equity crowdfunding. *Small Business Economics*, 46(4), 579–590. <https://doi.org/10.1007/s11187-016-9710-4>
- Vismara, S. (2018). Information cascades among investors in equity crowdfunding. *Entrepreneurship Theory and Practice*, 42(3), 467–497. <https://doi.org/10.1111/etap.12261>
- Vismara, S. (2019). Sustainability in equity crowdfunding. *Technological Forecasting and Social Change*, 141, 98–106. <https://doi.org/10.1016/j.techfore.2018.07.014>
- Vismara, S., Benarolio, D., & Carne, F. (2017). Gender in entrepreneurial finance: Matching investors and entrepreneurs in equity crowdfunding. In A. N. Link (Ed.), *Gender and Entrepreneurial Activity* (pp. 271–288). Edward Elgar Publishing, Cheltenham, UK. <https://doi.org/10.4337/9781785364747.00015>
- Wooldridge, J. M. (2010). Censored data, sample selection, and attrition. In *Econometric Analysis of Cross Section and Panel Data* (2nd ed., pp. 777–852). MIT Press, Cambridge, USA. Retrieved June 20, 2024, from <http://www.jstor.org/stable/j.ctt5hhcfr.25>
- Zook, M. A. (2002). Grounded capital: Venture financing and the geography of the internet industry, 1994–2000. *Journal of Economic Geography*, 2(2), 151–177. <https://doi.org/10.1093/jeg/2.2.151>

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