Do Birds of a Feather Crowdfund Together?

The Role of Regional Socioeconomic Similarity in Equity Crowdfunding

Abstract

Disparities in regional socioeconomic development, or 'intangible distance', affect investment decisions in equity crowdfunding. Using investment data from a German equity crowdfunding platform, we show that domestic crowd investors exhibit a local bias, in the sense that they are more likely to invest in ventures that are located closer to their place of residence. However, this bias is moderated by intangible distance, as greater economic and institutional similarity between the regional environments of the investment target and the investor's location reduce the investor's preference for geographical proximity. Furthermore, greater cultural distance exacerbates existing local bias, indicating a trade-off between different socioeconomic dimensions of distance. Overall, we show that both geographical and socioeconomic factors can act as barriers to investment, hindering the effective allocation and diversification of funds in equity crowdfunding.

Keywords: equity crowdfunding, local bias, entrepreneurial financing, intangible distance, geographical proximity, regional socioeconomic development

JEL classification: D91, G11, G41, O16, O18, R11

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1. Introduction

The geographical distance between investors and their investment targets can have a significant impact on investor behaviour. For instance, greater geographical distance may impede the flow of information and thus make it more difficult for investors to acquire and process value-relevant information (Szulanski, 1996). Conversely, greater geographical proximity may reduce the cost of acquiring information, enable investors to access private information, and lower agency costs by putting investors in a better position to monitor their investments and exercise respective control rights (Coval & Moskowitz, 2001). In this context, many empirical studies have shown that local bias – defined as a preference for investment opportunities closer to home – is common among both private investors (Feng & Seasholes, 2004; Ivkovic & Weisbenner, 2005) and professional investors, such as mutual fund managers (Coval & Moskowitz, 2001; Pool et al., 2012), hedge fund managers (Sialm et al., 2020), and venture capitalists (Cumming & Dai, 2010).

This paper adopts a broad perspective on distance that encompasses not only its (tangible) spatial dimension, but also its (intangible) economic, administrative and cultural dimensions (Ghemawat, 2001; Nachum & Zaheer, 2005; Tsang & Yip, 2007; Zaheer et al., 2012). We examine how investment decisions are impacted by this more broadly defined distance in the context of equity crowdfunding, which is of particular interest given its unique institutional properties. Due to its platform-based matching of supply and demand for capital via the internet and the relatively low barriers to entry for both investors and firms, we expect equity crowdfunding to be subject to fewer frictions – and hence costs – associated with distance than other forms of (early-stage) investment. However, it is unclear to what extent these distinguishing properties of equity crowdfunding moderate the impact of typical drivers of local bias identified in previous research, such as homophily in social networks (McPherson et al., 2001), familiarity with the investment target (Ackert et al., 2005; Grinblatt & Keloharju, 2001; Huberman, 2002), overly optimistic views of local assets (Solnik & Zuo, 2017; Strong & Xu, 2003), and greater investor attention to local campaigns (Bade & Walther, 2021; Huang et al., 2016). Against this background, we examine how geographical proximity, as well as the intangible dimensions of distance – namely economic, administrative/political, and cultural distances – moderate crowd investors' behaviour.

The extant international trade literature confirms the impact of intangible distance on bilateral transactions (for instance, Egger & Lassmann, 2015; Egger & Toubal, 2018; Lewer & Van den Berg, 2007) and indicates that intangible distance in the form of incomplete information or institutional or cultural differences constitute intangible barriers to trade. Moreover, some studies analyse the effects of country-specific differences in economic development on managerial behaviour (Hutzschenreuter et al., 2016). They suggest that managers from developed countries may feel uncertain about their ability to address issues specific to less prosperous countries, while the opposite is not necessarily true for managers from less developed countries (Cuervo-Cazurra & Genc, 2011). Tying in with this line of research, we argue that crowd investors located in more prosperous regions may be more distance-sensitive than those in less wealthy regions. However, intangible distance can also reflect comparative advantages in terms of available human capital, financial resources, and institutional quality (Belloc, 2006; Lankhuizen et al., 2011; Levchenko, 2007), which may entice investors from regions with a higher level of socioeconomic development to invest in less prosperous target markets (Tsang & Yip, 2007), despite the additional effort required to understand these markets (Evans & Mavondo, 2002; Hutzschenreuter et al., 2016). Therefore, overall, research to date does not allow a clear conclusion to be drawn as to whether the intangible dimensions of distance tend to amplify or mitigate the impact of geographical distance on investment decisions.

The present study is based on a dataset that comprises 44,068 cross-state investment decisions made by 16,866 individuals between June 2012 and May 2019 on the German crowdfunding platform Companisto. Elastic net linear regression analyses are employed to examine whether crowd investors are more likely to invest in firms that are geographically closer to their home location than would be expected based on a neutral benchmark portfolio. The results suggest that domestic investors exhibit a significant local bias, thereby contributing to the extant literature on equity crowdfunding by substantiating the existence of a link between geographical proximity and funding activity. Moreover, we account for the potential relevance of intangible distance to the investment decision. We use the disparity in regional socioeconomic development as a measure of intangible distance and find that intangible distance influences the local bias for cross-regional investments. The results indicate that crowd investors pledge capital to ventures operating in different German federal states in order to benefit from regional economic and institutional disparities. The observed effects remain significant even after controlling for the influence of other factors such as gender, herding, social network, and financial literacy. In particular, it seems that crowd investors are concerned about the risks

associated with regional cultural dissimilarities. Overall, our study contributes to the literature by demonstrating that intangible distance between the investor and the investee plays a substantial part in explaining crowd investors' investment decisions.

The remainder of this paper is structured as follows. Based on an overview of the extant literature on crowd investors' local bias and the role of intangible distance in their investment decisions, Section two develops the paper's main hypothesis. Section three describes the research design, focusing specifically on the data, variables, and methodology used to test the hypothesis. Section four presents the summary statistics, main results and robustness checks. Section five concludes the paper.

2. Literature review and hypothesis development

2.1 Is there a local bias among investors in equity crowdfunding?

Previous studies have provided ample evidence of local bias among investors in traditional financial markets, offering two theoretical explanations for this phenomenon: local informational advantage (Bernile et al., 2015; Choi et al., 2017; Coval & Moskowitz, 1999; Ivkovic & Weisbenner, 2005; Rutterford et al., 2017) and alleviated agency costs (Ang et al., 2000). Distance amplifies information asymmetries between the capital-seeking venture and potential investors, which in turn increases the perception of uncertainty and risk (Colombo et al., 2019; Cowling et al., 2021). In order to alleviate this problem, investors prefer more proximate ventures where they have informational advantages, such as easier access to information through local media or personal ties with local executives, and lower information processing costs (Coval & Moskowitz, 1999). Furthermore, monitoring the investees' (entrepreneurs') actions becomes easier with greater geographical proximity.

Previous research also provides several behavioural explanations for distance-sensitive investment decisions in traditional financing channels (Giannetti & Laeven, 2016; Morse & Shive, 2011; Pool et al., 2012; Seasholes & Zhu, 2010). For instance, investors exhibit a preference for geographically closer investments due to a greater perceived familiarity (Ackert et al., 2005; Grinblatt & Keloharju, 2001; Huberman, 2002; Parwada, 2006), or overly optimistic expectations (Li, 2004; Solnik & Zuo, 2017; Strong & Xu, 2003). Moreover, local bias can also be rooted in homophily present in social networks, where geographical proximity is "perhaps the most basic source of homophily" (McPherson et al., 2001, p. 429). In this context, Huang et al. (2016) find that investors pay more attention to the stocks of local companies than to other stocks.

Unlike traditional financing methods, equity crowdfunding relies more heavily on disseminating venture-specific information via dedicated internet platforms, regardless of the venture's location. This reduces investors' transaction costs associated with identifying and evaluating investment opportunities, monitoring active investments and directly interacting with entrepreneurs (Agrawal et al., 2015; Kim & Viswanathan, 2019). Moreover, as crowd investors usually invest only small amounts of money, their exposure to the target ventures tends to be limited, implying weaker monitoring incentives (Agrawal et al., 2015; Blaseg et al., 2021). Overall, these factors may significantly mitigate investors' preference for local ventures, thereby democratising the supply of financial funds (Butticè & Vismara, 2022; Cumming et al., 2021; Yasar, 2021).

However, the ease of disseminating information on crowdfunding platforms might also encourage 'cheap talk' (Cumming et al., 2023), or selective release of value-relevant information. In addition, some types of value-relevant information, for instance those concerning the entrepreneurs' skills and beliefs, may be difficult to convey without direct social interaction (Agrawal et al., 2015; Dejean, 2020). Furthermore, crowd investors tend to be less sophisticated (Kleinert & Volkmann, 2019) and more driven by a community logic (Cumming et al., 2019; Vismara, 2019) than typical investors in traditional financial markets. This may hinder their ability to overcome both distance-related frictions and pre-existing behavioural biases. Consequently, while the crowdfunding process may be largely free from spatial constraints, crowd investors might still exhibit a preference for geographically closer ventures.

Previous research on the effects of geographical distance on funding decisions in equity crowdfunding has largely confirmed the existence of local bias. Günther et al. (2018) provide evidence suggesting that home country investors display a strong preference for local ventures in the Australian crowdfunding market. However, their study does not shed light on potential drivers of these distance-biased investment decisions. Hornuf et al. (2022) identify local bias at the individual investment level, as well as in value-weighted portfolios of individual investors, within the German crowdfunding market for the period from 2011 to 2014. Their evidence suggests a stronger local bias among angel investors and entrepreneurs' 'friends and family'. This is plausible given that both types of investors are in a relatively better position than other investors to exploit local knowledge to resolve information asymmetries. In comparison, other investors appear to diversify their portfolios regardless of the geographical location of their investment targets, which suggests that local bias is information-driven. However, Hornuf et al. (2022) also document that locally biased investments are more likely to be made in start-ups

that later become insolvent or are dissolved. This suggests that local investment decisions tend to be less rational and that emotional factors may play a role in forming local bias.

Bade and Walther (2021) also confirm investors' preference for geographically proximate ventures at the investment level within the German crowdfunding market. Specifically, they show that investors allocate more attention to local campaigns. Similarly, Wang and Prokop (2024) find that geographical proximity exerts a positive influence on investment decisions, affecting both the decision to invest and the amount invested. Furthermore, they provide evidence that female domestic investors exhibit a stronger local bias than male investors, which appears to be more damaging to female entrepreneurs, as their campaigns rely more heavily on funding by female investors.

Cumming et al. (2021) find that remotely located companies in the UK have a greater probability of successfully completing an equity crowdfunding offering. However, they do not investigate individual investors' decisions, or the drivers of this distance bias. Cai et al. (2021) focus on the Dutch market and find that distance has a negative effect on cross-regional investments. Moreover, this negative effect is weaker if regional social networks are strong. Their results imply that economic factors, including information available through social networks and the capability to acquire and process this information, may partly explain local bias. Furthermore, they find that investors in regions with a higher concentration of financial sector firms are less biased by distance. Based on this, they argue that the number of financial experts in a region may create financial knowledge spillover effects and lead to higher overall financial literacy.

2.2 Does intangible distance impact investment decisions in equity crowdfunding?

Extant studies have largely focused on physical distance and its impact on investment behaviour in the context of (equity) crowdfunding. However, there is little empirical evidence on the influence of intangible distance on the decisions of crowd investors (Broström, 2010). For instance, Jiang et al. (2020) find that heterogeneity in geography, language, and social trust has an influence on the degree of local bias among funders in the peer-to-peer lending market. A related study is carried out by Dejean (2020), who uses a modified gravity equation model to demonstrate the presence of local bias in reward-based crowdfunding, and the moderating effect of inter-regional social ties. However, the international business and international trade literature provides ample empirical evidence of bilateral transactions being affected by different types of distance, including the geographical distance, as well as intangible dimensions of distance, such as economic, institutional, and cultural distance (see, for instance, Egger &

Lassmann, 2015; Egger & Toubal, 2018; Lewer & Van den Berg, 2007). In line with this literature, we argue that the distance between crowd investors and investees should be measured not only in geographical terms (Gilly & Torre, 2000), but also alongside these multiple dimensions (Günther et al., 2018).

Geographical distance leads to economically costly frictions. These frictions impede the flow of information (Acs et al., 1994; Tyre & Von Hippel, 1997) and reduce the ability to communicate, acquire, and process information, which in turn leads to information asymmetry, even within the same organisation (Tomlin, 1981). Thus, the costs of transferring knowledge and technology increase with physical distance (Audretsch & Stephan, 1996), including greater search costs and transaction costs (Boeh & Beamish, 2012; Williamson, 1991).

Intangible distance influences investment motivations in relatively complex ways. On the one hand, as documented in the context of foreign direct investments, investors might want to exploit their comparative advantage in regional development or at the industry level, so they direct money into ventures in other regions. A lower level of socioeconomic development, especially economic development, of the host market may allow investors to exploit resources in the host market (Tsang & Yip, 2007). Consequently, bilateral transactions may be fostered and local bias may be reduced. On the other hand, intangible distance reflects intangible barriers to trade, including incomplete information and institutional and cultural barriers (Boschma, 2005). These barriers can lead to uncertainty and confusion in the transmission and interpretation of information, which in turn can influence potential investors' perception of the attractiveness of investment targets (Dow & Karunaratna, 2006). Distance in terms of economic development influences the availability of information regarding markets and the ease with which information can flow to potential investors (Dow & Karunaratna, 2006). In regions with a high level of economic development, information is likely to be gathered, diffused, and exchanged faster among the public than in less developed regions. In turn, in former regions there may be less uncertainty in investment agreements and transactions (Brewer, 2007; Ghemawat, 2001). The quality of institutions, formal or informal, affects interactions between government and business, expropriation risks, the degree of corruption, the enforceability of private contracts, and hence the security of transactions (Anderson & Marcouiller, 2002). Institutional distance causes increased uncertainty surrounding bilateral transactions and difficulty in assessing risks related to the governmental and regulatory domains (Henisz, 2000). Moreover, equity crowdfunding investments, viewed as a special form of bilateral transactions, may be hampered more if the distance between institutional environments increases. The majority of ventures in equity crowdfunding are start-ups and small- and medium-sized enterprises (SMEs), which are

more sensitive to the institutional framework. Unfavourable institutional environments, such as those characterised by inadequate institutional support and legal rights protections to SMEs, unwillingness of banks to provide funding, and inefficient problem-solving, may prevent the pre- and post-funding development of SMEs and hence influence potential investors' evaluation of ventures operating in such contexts. Moreover, due to institutional distance, investors and investees are likely to respond to institutional rules differently. The greater the differences in institutional environments of the investor and investee, the more difficult it is to establish mutual trust between them and reduce the potential for opportunistic behaviours in their transactions. Cultural distance is particularly in equity crowdfunding because it impedes the establishment of mutual trust and commitment (Dejean, 2020). More specifically, distance in terms of language, cultural values, and norms weakens personal social ties, makes it more difficult to understand the opportunities and risks of equity crowdfunding investments, and hampers the establishment of relationships and the realisation of investments. Additionally, Hutzschenreuter et al. (2016) argue that managers from countries characterised by high economic development and good quality institutions feel uncertain about their ability to deal with contexts related to less prosperous countries, while their counterparts in less developed countries may view distance in a less conservative way (Cuervo-Cazurra & Genc, 2011). Using similar reasoning, crowd investors in more prosperous regions may be more distance-sensitive, while having more money and being more willing to invest.

Therefore, we hypothesise that regional socioeconomic development influences local bias in equity crowdfunding. Regional characteristics can proxy emotional factors, such as social trust and altruism. They may also capture economic characteristics such as the skills of the workforce, access to the internet, experience of and knowledge about online transactions, financial literacy, and an understanding of the opportunities and constraints of online investments (Hornuf et al., 2022). Thus, we conjecture that the intangible dimension of distance, as measured by the disparity of socio-economic characteristics between the regions of the investor and the investee, plays a role in explaining the local bias that occurs in cross-regional investments. While the underlying mechanisms may have varying effects, we expect the overall impact of intangible distance on investment decisions to be significant. Consequently, our main hypothesis is that intangible distance, as measured by regional socioeconomic disparity, moderates the local bias of cross-regional equity crowdfunding investments.

3. Data and research methodology

3.1 Data

The investment data was scraped on 17 May 2019 from the German equity crowdfunding platform Companisto (*https://www.companisto.com/de/investments*). Companisto is one of the most active and successful platforms in the German equity crowdfunding market and therefore provides a large representative sample of investors involved in the German equity crowdfunding market. It offers open-access detailed data on individual investments such as the investment date, the investment amount, and the investor. Most notably, compared to other platforms whose data has been used in similar studies, Companisto provides more detailed information about investors including the user identification, the real-time dynamic ranking, and the voluntary disclosure of name, gender, image, and location of residence. Free of survivor bias, the initial dataset consists of 104 finished campaigns, successfully or unsuccessfully completed. Four of these campaigns ("Weissenhaus", "Weissenhaus 2", "Companisto 1", and "AMERICA") are excluded because no information about these campaigns' investors is available on the platform. For each of the other campaigns in this dataset, information on the venture and the campaign is collected from the platform.

For each individual investment, we collect information on the amount of capital, the date, the investor's unique user identification, and dynamically updated rank. Moreover, we extract the following voluntary disclosures from the investor: first and last name, default image selected by the investor to indicate gender or own image uploaded by the investor, and current location. In a similar vein to Hornuf et al. (2022, p. 702), we assume that investors have no incentive to misrepresent their name, sex, and place of living. In this step, another three campaigns ("Panono", "MyParfum", and "MyCouchbox") have to be excluded because the number of investor names scraped does not equal the number of investors given by Companisto on the campaign page, indicating that some investments were withdrawn during the campaigns. After this step, 69,220 individual investments from 20,623 investors to 97 ventures are left in the dataset. Next, we take into account the fact that 2,140 and 1,412 investors pledge capital twice and three times in a certain project, respectively. For each of these investors, all their follow-on investments took place on the same date as their first investment in each corresponding venture. Therefore, these follow-on investments are merged into their first investment in each corresponding venture. Once this is done, the sample size is reduced to 64,250 investments from 20,619 investors.

To identify the gender of the investors, we check the default images selected by the investors and extract the gender information. If the investors choose instead to upload their own image, we use the Python package "gender guesser" to infer the gender from the first names of the investors.[1] When analysing the first name, the package can return one of the following six values: "male", "female", "mostly male", "mostly female", "andy 50%-50%", and "unknown name not found in the dataset". We kept only the values "male" and "female" in the dataset. Moreover, as the analysis focuses on the distance sensitivity of private investors, investments from overseas investors and company investors are excluded from the dataset.[2]

In order to calculate the distance between the investor and the venture for each investment decision, we extract the location of the venture from the campaign webpage and compare it with information obtained from the German company register ("Bundesanzeiger*")*. If they are not identical, we use the latter for the calculation. If an investor only provides the federal state name, we assign him to the centre of the state. We then employ the "ArcGis geocoding" module in Python to convert venture and investor locations into coordinates and the "geodesic" module in Python to calculate the linear Vincenty distance.[3] Investments for which no location information is offered or the location could not be uniquely identified (for instance, "Hamburg, MT") are excluded from the dataset. In addition, investments with an unclear investment date ("0001-11-30") are also omitted. Furthermore, on Companisto, ventures typically have two months to surpass the investment threshold (usually set at 100,000 EUR), but there are also cases in which campaigns are extended for an additional two months. Subsequently, only investments taking place within the first 120 days of the campaign's start are considered in the analysis. After this step, the dataset includes 51,423 individual investments from 16,933 investors to 97 ventures. Of these, 709 investments are directed by 564 German investors to three ventures located in Austria. Regional development disparity cannot be examined for these

[1] The "gender guesser" is one of the most frequently used gender classification tools. It is presumed to be of high quality, because its dictionary, containing more than 45,000 common names and their corresponding gender, has been manually verified by native speakers from various countries (Santamaría & Mihaljević, 2018; https://pypi.org/project/gender-guesser/). A recent study by Zeina et al. (2020) validates the tool using a public dataset comprising 29,872 names extracted from Wikipedia. The study finds that the tool is 99.2% and 95.6% accurate at detecting "male" and "female" names, respectively.

[2] Günther et al. (2018) document that overseas investors are not sensitive to distance, whereas home country investors, both retail and accredited ones, prefer geographically closer ventures.

[3] Unlike Günther et al. (2018) who use the great-circle distance, we compute the geodesic distance between individual investor and venture in each individual investment using the formulae developed by Vincenty (1975). Great-circle distance assumes a spherical Earth, while Vincenty's formulae are based on an ellipsoidal model of the Earth. Both are widely used to calculate the geodesic distance between two points on the surface of the Earth. We rely on the Vincenty distance using the World Geodetic System-84 ellipsoid as it is considered to deliver more accurate results.

investments; therefore, they are not included in the analysis. The final dataset consists of 44,068 cross-state investments from 14,636 investors to 94 ventures. The final dataset covers the period from the inception of the platform to 17 May 2019. Appendix A.1 provides an overview of the sample reduction process.

3.2 Variables

The main variable is the local bias of individual investments, defined as the tendency to invest in more local firms compared to a neutral benchmark portfolio. Building on the work of Coval and Moskowitz (1999), Cumming and Dai (2010), and Hornuf et al. (2022), we employ a scaled distance measure rather than absolute geographical distance in order to avoid potential bias due to reverse causality. To compute the investment-specific local bias variable, we first construct a benchmark portfolio for each investment from investor *i* in venture *j*. This benchmark portfolio contains all ventures that were available on the crowdfunding platform during the period from four weeks before to four weeks after the investment was made, as these represent the specific investment opportunities available to investor *i* when the investment decision was made. The ventures are equally weighted in the benchmark portfolio. If d_{ij} denotes the distance between investor *i* and venture *j*, and *N* is the number of ventures available on the platform at the time investor *i* invested in venture *j*, the mean distance of the equally weighted benchmark portfolio is defined as follows:

$$d_{iM} = \frac{1}{N}\sum_{j=1}^{N} d_{ij}$$

The local bias associated with investment *ij* is then defined as:

$$Local\_bias_{ij} = \frac{d_{iM}\text{-}d_{ij}}{d_{iM}}$$

Ranging from minus infinity to plus one, this local bias variable shows how individual investments are divergent from the average location-neutral investment in terms of distance. If the investor is not location-biased and invests in a firm that is of a comparable distance to the neutral benchmark portfolio, the variable assumes a value of zero. Positive values indicate decisions in favour of local firms, while negative values imply that distant firms are preferred. In line with previous research, we expect the local bias measure to be significantly different from zero and positive.

In order to test the main hypothesis of the paper regarding a moderating impact of intangible distance on local bias in investment decisions, the analysis incorporates the economic, institutional, and cultural dimensions of intangible distance. To capture these dimensions, we

consider multiple regional socioeconomic metrics and the respective differences between the investor's and the investee's regions. All region-related variables are lagged by one year relative to individual investments to avoid bias due to potential reverse causality or simultaneity. We focus on the metrics summarised in Table 1, as they have been found to be particularly relevant to investment decisions made by crowd investors, or venture capital investors.

< Table 1 about here >

Chen et al. (2010), among others, find that the economic development of a state has a significant influence on the number of venture capital firms' offices in the respective state, a proxy for the geographical concentration of venture capitalists. In their study, the state-level economic development is measured by gross state product (GDP) per capita, the percentage of the population with a college degree or higher, and patents per capita. Similarly, our study measures the economic distance between the investor's and the investee's regions by using GDP per capita and two measures of innovativeness: the share of students in the population and the number of patent applications per 100,000 inhabitants. Moreover, since our focus is on local bias in individual investment decisions, we also include the following variables as proxies for the average amount of money individuals in a region can save, spend or invest: population density (people per square kilometre) to measure the concentration of individuals in a region, available income per capita, and unemployment rate.

Given that the majority of ventures involved in equity crowdfunding are start-ups and SMEs, the institutional environment – in terms of, for instance, the regulatory framework and access to strategic resources like finance, information, and management capacity – is of particular importance. A favourable institutional environment, characterised by a broad range of available resources, supports the survival and growth of ventures and reduces the risk perceived, and later experienced, by prospective crowd investors. In contrast, ventures operating in a weak institutional environment face resource constraints and have limited capacity to create a comparative advantage (Novikov, 2014). Crowd investors might therefore consider these ventures too risky and be reluctant to provide capital. To measure differences in institutional environment, the following factors are considered: the self-employment rate[4] and the New

[4] Glaeser (2009) provides evidence that variation in the self-employment rate is related to variation in demography and industry concentration.

Entrepreneurial Initiative indicator[5] as measures of entrepreneurial activity; the investment volume of venture capitalists (which is taken from the German Private Equity and Venture Capital Association, or "Bundesverband Deutscher Kapitalbeteiligungsgesellschaften") and the location quotient of the financial services and insurance industry, which serve as measures of access to traditional financing channels. The location quotient of the financial services and insurance industry in a federal state is defined as the percentage of employees in the industry in the respective state divided by the percentage of employees in this industry in Germany. If the industry is concentrated in the federal state in the same proportion as in the country as a whole, the federal state's location quotient is one. By contrast, if the federal state is more specialised in this industry than the country as a whole, its location quotient will be greater than one, indicating that it has a competitive advantage in this industry and that it exports its excess production to other markets. A location quotient of less than one indicates that the industry is under-represented in the federal state relative to the country as a whole (Miller et al., 1991, p. 65). Moreover, if there is clustering of the financial services and insurance industry in a specific region, this is typically associated with a pool of qualified labour, access to risk capital, and advances in industry-specific technology (FinTech) that create knowledge spillovers and positive externalities that local ventures can use and exploit (Cai et al., 2021; Delgado et al., 2014; Fracasso & Vittucci Marzetti, 2018; Gruber & Soci, 2010; Marshall, 1920; Wennberg & Lindqvist, 2010).

To measure cultural distance, the share of Protestants in the population is taken from the Research Group World Views in Germany ("Forschungsgruppe Weltanschauungen in Deutschland", FOWID). Using data from 97 small-scale German regions, Traunmüller (2011) offers empirical evidence of the impact of individual religiosity and regional religious context on the formation of social trust in Germany. In particular, he finds that not only do Protestants tend to be more trusting, but Protestant-dominated contexts also foster generalised social trust formations. We also include the share of people expressing an affinity with a far-right-wing party in the population, as determined by the German Socio-Economic Panel (SOEP).[6] The Gini

[5] The New Entrepreneurial Initiative ("Neue Unternehmerische Initiative") indicator has been published by the Institute for SME Research Bonn ("Institut für Mittelstandforschung") on a yearly basis since 1998. It measures the number of regional business registrations per 10,000 inhabitants of working age.

[6] The SOEP provides a representative longitudinal survey of the German population, covering nearly 15,000 households and approximately 30,000 individual participants (Goebel et al., 2019). The annual questionnaire contains questions capturing respondents' affinity with extreme right-wing parties. Two of these questions are as follows (Kantar Public, 2020, p. 28): "Many people in Germany lean towards one party in the long term, even if they occasionally vote for another party. Do you lean towards a particular party?" If the answer is yes, "Which party do you lean towards?" The percentage of respondents in a state in a given survey year who report a far-right-wing party affinity in all respondents in the same federal

coefficient is also used as an indicator of social income inequality and, in turn, the erosion of social trust at the regional level (see, for instance, Barone & Mocetti, 2016; Fairbrother & Martin, 2013). Moreover, as equity crowdfunding involves online information transmission and investment activities, two variables are included to measure the internet culture: the availability of 50-megabyte broadband, as published by the Federal Ministry for Economic Affairs and Climate Action ("Bundesministerium für Wirtschaft und Klimaschutz"), and the personal internet usage indicator from the D21 Digital Index.[7]

Within each dimension of intangible distance, we observe a strong correlation between the individual measures. This implies that the Euclidean distance, which treats all measures as independent and equally important, may not be a suitable metric for our study. Therefore, we construct a composite index for each dimension using the Mahalanobis distance, which allows us to account for the covariance matrixes of the individual measures in each dimension. In the following, we illustrate how the indices are calculated using the example of the composite cultural distance. Regarding the relationship between investor i and investee j, this measure is computed as:

$$\textit{Cultural distance}\ (x_i, x_j) = \sqrt{\left(x_i - x_j\right)^T C^{-1}(x_i - x_j)},$$

where x represents the vector of our five individual standardized cultural distance measures, T indicates the transpose, and C refers to the 5x5 variance-covariance matrix of the individual distance measures. An increase in the value of *Cultural distance* corresponds to a larger cultural dissimilarity between the investor and the investee region, which, in turn, may result in a greater local bias in equity crowdfunding investments.[8]

state in the survey year is calculated for the respective state and survey year. The parties "Alternative für Deutschland", "Deutsche Volksunion", "Die Rechte", "Nationaldemokratische Partei Deutschlands", and "Republikaner" are considered as far-right.

[7] The D21 Digital Index is based on an annual survey conducted by Initiative21.de and supported by the Federal Ministry for Economic Affairs and Climate Action in Germany in order to measure digital competencies. One question in the survey asks whether participants use the internet personally at least occasionally (Initiative D21, 2019, p. 16). Based on the answers to this question, Initiative21.de calculates the personal internet usage indicator for a given federal state as the percentage of the respective state's population that are internet users.

[8] When calculating the respective indices, the following three variables are used with a negative sign: the unemployment rate, the share of the population expressing an affinity with a far-right-wing party, and the Gini coefficient variables. This ensures that each of the measures and the dependent variable, local bias, move in the same direction, which is necessary for the computation of the Mahalanobis distance to be consistent.

In order to account for other potential determinants of local bias, the analysis includes a range of control variables that have been found to affect investment decisions in previous studies.[9] Moreover, to control for the effects of potential outliers, all but the region-specific continuous variables are winsorised at the 5% and 95% levels, respectively.

3.3 Empirical models

To investigate whether mean and median local bias measures significantly differ from zero and positive, one-sample t tests and the Wilcoxon signed rank test are performed, respectively. To determine whether investments from different investor categories (like male versus female, investor groups except those based on *InvestorGroup_Frequency* and *InvestorGroup_Amount*) exhibit local bias to different degrees, we conduct two-sample t tests with unequal variance for mean equality and the Wilcoxon rank sum test for median equality in the presence of skewed local bias data. One-way ANOVA and median tests (median regression) are performed to determine the mean and median equality of local bias among investor groups based on *InvestorGroup_Frequency* and *InvestorGroup_Amount*, respectively. Elastic net linear regression analyses are carried out to capture the influence of regional development disparity, as measures of intangible distance, on the locality of investment decisions (H1). This method is particularly well suited to the problem at hand, as its combination of Lasso and Ridge regression techniques leads to sparsity in variable selection (circumventing potential overfitting problems) and mitigates the impact of potential multicollinearity issues at the same time.

The main regression model is specified as follows:

$$\begin{aligned}\text{Local\_bias}_{ij} = {} & \beta_{0ij} + \beta_{1ij}\text{X}_{\text{Intangible distance }ij} \\ & + \beta_{2ij}\text{X}_{\text{Investment-related variables}_{ij}} + \beta_{3ij}\text{X}_{\text{Investor-related variables}_{ij}} \\ & + \beta_{4ij}\text{X}_{\text{Venture-related variables}_{ij}} + \beta_{5ij}\text{X}_{\text{Campaign-related variables}_{ij}} + \varepsilon_{ij}\end{aligned}$$

The matrix form of the estimated beta coefficients is defined as follows:

$$\hat{\beta} = arg\ \min\left[\sum_{k=1}^{m}\left(y_k - \sum_{p=1}^{n}\beta_p X_{kp}\right)^2 + \lambda\left[(1-\alpha)\sum_{p=1}^{n}\beta_p^2 + \alpha\ \sum_{p=1}^{n}|\beta_p|\right]\right],$$

where m denotes the number of observations and n is the number of predictors. The tuning parameter, λ, determines the overall strength of the regularisation term, while α is the mixing parameter that determines the balance between the Lasso and Ridge penalties. The parameters

[9] We outline these variables and the reasons for their inclusion in the Supplemental Online Appendix OA.1.

λ and α are selected by minimising the prediction error and using tenfold cross-validation. The estimated beta coefficients represent the effect of their corresponding independent variables on the dependent variable, $Local\_bias_{ij}$, incorporating the regularisation terms. Positive numbers in this case indicate a positive influence on the dependent variable, while larger absolute values imply a more substantial effect. The elastic net regression technique automatically eliminates independent variables which have zero coefficients through the Lasso penalty, thus retaining in the analysis only those that are relevant to explaining the dependent variable.

4. Results

4.1 Descriptive statistics and results of tests of mean equality and median equality

Table 2 shows the descriptive statistics and the results of the tests for equality of the mean and median of local bias across investor groups for individual cross-state investments. Overall, the mean local bias ranges from -0.75 to 1 and averages 0.053. As the one-sample *t* test shows, the mean value is significantly different from zero at the 0.1% level. This implies that these investments are directed towards ventures that are 5.3% closer to the investor than an average location-neutral investment, confirming the expected existence of local bias in investment decisions. The distribution of the data is skewed to the right. The median is -0.001 and statistically significant at the 0.1% level according to the Wilcoxon signed rank test. In contrast, Hornuf et al. (2022) document a substantially smaller local bias among investments from German investors on the same platform from November 2011 to August 2014, ranging from -4.65 to 0.997, with a mean value of 0.5% (statistically not different from zero) and a median value of -0.2%. This apparent difference lends support to the argument that investors who entered the equity crowdfunding market in its early stages exhibited different characteristics such as greater financial literacy and lower susceptibility to emotional factors related to local bias.

< Table 2 about here >

Investments from female investors exhibit a greater local bias, with the mean and the median difference being significant at the 5% and 10% levels, respectively. Similarly, the local bias in the average investment from investors with personal ties to their investee entrepreneurs (family

and friends) amounts to 7.01%, which is greater than the local bias of 4.86% found in case of other investors. This difference is statistically significant at the 0.1% level. Furthermore, investments occurring in the first three days of the campaign are biased towards local firms as well. The average distance between investors and investee ventures is 12.78% smaller than the distance to the location-neutral benchmark portfolio, while later investments are, on average, only 2.45% closer to the investee venture than the respective benchmark investment. Finally, investments from investors with different levels of experience, characterised by varying investment frequency and total investment amount on the platform, are biased to different degrees. As the results of the one-way ANOVA and the median tests show, the respective differences in means and medians are statistically significant at the 1% level.[10]

< Table 3 about here >

Table 3 shows descriptive statistics for investment- and investor-related variables for the cross-state investment sample. The geographical distance between the investor and the investee ranges from 116.55 kilometres to 580.30 kilometres and averages 370.42 kilometres. The Mahalanobis distance in economic development between the investor and the investee is slightly left-skewed, with the smallest standard deviation among investment observations. In contrast, the institutional and the cultural distance are more skewed to the right and display a greater dispersion. On average, cross-state investment decisions are made when the venture has accumulated 44.27% of its funding target from 374 investors. Out of the 44,068 cross-state investments, 9.80% are from female investors; 21.78% are from family and friends of entrepreneurs, and 27.84% take place within the first three days of the campaign's start date. Moreover, more than one-third of the cross-state investments are from investors who invested on the platform at least ten times (35.92%) and at least 100 EUR, but less than 1,000 EUR (37.88%).

Table 4 provides an overview of the campaign- and venture-related characteristics of in cross-state investments. As shown in the table, the average venture's TMT consists of two people,

[10] Appendix A.3 shows the results of an additional kernel density estimation of the local bias of inter-state investments for different investor groups. The kernel used is the Epanechnik kernel and the bandwidth is determined by minimising the mean integrated squared error. As the graphs show, the distribution of inter-state investments is left-skewed and highly concentrated around zero and in the two tails. Differences in local bias among investor groups characterised by investment experience are also noticeable both around zero and in the two tails.

20.94% of the TMT members hold a doctoral degree, 13.97% hold an MBA degree, and 15.95% are females. The average venture's age at the time the campaign is active is 4.23 years. Out of the 44,068 cross-state investments, 41.73% are directed at ventures with historical financial information accessible via the German company register ("Bundesanzeiger"). 16.40% go to ventures owning at least one patent, 29.71% go to ventures that have received at least one award, and 10.91% are directed at ventures that have received financial support from the government. Furthermore, 12.39% are directed towards ventures pursuing follow-on equity crowdfunding and 22.58% towards ventures in the software and IT solution industry. The majority of the investments flow to ventures at the seed or start-up stage and ventures in the legal form of GmbH. 67.90% of the ventures are located in one of the big five metropolitan cities. With the average pitch containing 1.29 videos and a description that is 3,842 characters long, the average venture offers 11.90% of its shares for a total of 0.67 million EUR. Taken together, this indicates that young and small businesses are the key players in the German equity crowdfunding market and that these businesses are primarily operated by male entrepreneurs.

< Table 4 about here >

The results of tests for multicollinearity are included in Appendix A.4. Panel A reports the Pearson correlation matrix for all the variables used in the present study, including the composite Mahalanobis distances. The high correlation coefficients detected arise from the definition and calculation of the variables, such as the correlation coefficient between the two measures of herding, *Cum.#Investor* and *Cum.Amount%target*, the one between *Angel-like* and *InvestorGroup_Frequency*, two measures of investment literacy, and the one between two measures of social network, *Investor2Fs* and *Investor3Fs*. Given that each of the investment literacy and social network measures is used in separate regression analyses, these high correlation coefficients are not considered problematic. Panel B shows the variance inflation factors (VIF) for the continuous variables. None of the VIF values exceeds the threshold of 10 (see, for instance, Alin, 2010; Hair et al., 2009). The mean VIF values do not exceed 2.5 either. Only the VIF values of two variables – *Cum.#Investor* and *Cum.Amount%target* – are higher than 2.5, which can be attributed to the fact that both variables serve as proxies for the herding behaviour of crowd investors. However, as Panel C shows, incorporating categorical control variables into the analysis results in a considerable inflation of the VIF values. The mean VIF increases to 7.16, which exceeds the more conservative threshold of 5. Therefore, we decided

to use the elastic net linear regression model to identify the optimal combination of the Lasso and the Ridge regularisation in order to reduce model complexity and address any potential multicollinearity issues.

4.2 Results of regressions on local bias of individual investments

In the elastic net linear regression, the calculation of the log-likelihood function and the division of the sample in cross-validation take into account the clustering structure of the data at the investor level. The local bias variable is regressed on the composite Mahalanobis distances, the gender of the investor, and measures of herding, social networks, and financial literacy. Venture-, campaign-, investment-, and investor-related variables are included the regression model as control variables. Table 5 shows the estimated coefficients of the elastic net linear regression models.

< Table 5 about here >

Model 1 in Panel A is the baseline model, including only the venture- and campaign-related variables. Investor state, investment weekday, month, and year dummy variables are included to capture fixed effects. Investments directed towards ventures from the software and IT solution industry and investments in ventures established as limited companies (GmbH) both exhibit stronger local bias than investments in their peers. Investments in female-operated ventures ($\beta = 0.0337$) and ventures in the early stages of development ($\beta = 0.0503$) are also more biased than their counterparts. Disclosure of financial information contributes to attracting investments from geographically more proximate regions. Moreover, ventures with at least one TMT member holding a doctorate, ventures with a larger management team, ventures that have received financial support from the government, ventures that start a follow-up equity crowdfunding campaign, and ventures that use profit-participating loans as a financing instrument are more likely to receive funds from distant investors in other states. It is notable that ventures located in Hamburg and Frankfurt attract more local investments compared to ventures located elsewhere ($\beta = 0.0162$ and 0.153, respectively). In contrast, being located in Berlin, Munich, or Cologne reduces the local bias of investments, while award and patent ownership are positively associated with local bias. In addition, campaign characteristics also play a role in the local bias of the inter-state investments. Setting a higher funding target, offering a larger proportion of shares, publishing longer campaign descriptions, and uploading

more pitch videos all help to attract more localised cross-state investments. The more competing campaigns there are on the platform, the less location-sensitive the investments are. The co-financing model, in contrast, does not have a significant effect on local bias, as evidenced by the variable being eliminated from the regression model.

Model 2 in Panel B extends Model 1 by adding the three composite Mahalanobis distances. All three distance measures are retained in the model, suggesting that intangible distance has an influence on the investment local bias, which is in line with H1. In particular, we find that regional disparities in economic development and institutional environment are negatively associated with local bias. Comparatively, the greater the cultural dissimilarity between the investor and the venture region, the more likely the investor is to allocate capital to geographically proximate ventures. These findings imply that investors seek to exploit opportunities arising from disparities in economic and institutional environment between their regions and those where target ventures are located. However, investors tend to be more sensitive to the uncertainties associated with regional cultural disparities and, as a result, are more inclined to invest in geographically proximate ventures if cultural differences are large. Thus, these results underscore the multifaceted nature of investment decision-making, where a trade-off exists between economic and emotional considerations.

In Model 3, we add the investor gender variable *Female* to the model. Investments from female funders are more likely to be directed towards geographically closer ventures then those from male funders (β = 0.0167). The difference is statistically significant.

In Model 4, we add the two measures of herding behaviour. *Female* remains statistically significant (β = 0.0167). The more investors the venture attracts in total by the day before an investment, the less local the investment is relative to the benchmark portfolio (β = -0.238). Thus, investors exhibiting herding behaviour care less about the location of the target ventures. In contrast, the more funds the venture has collected from crowd investors in total by the day before an investment, the more localised the investment is relative to the benchmark portfolio (β = 0.0662). Since the proportion of shares offered in the campaign is fixed, the more capital the venture has accumulated, the smaller the stakes obtained by late-coming investors will be. Therefore, individuals from a geographically closer location are more likely to invest in order to exercise better control and monitoring.

Model 5 extends Model 4 by adding the social network measure *Investor2Fs*. Investments from investors with pre-existing social ties with entrepreneurs are more local compared to investments from other investors (β = 0.0242). The difference is statistically significant. Models

6–8 extend Model 4 by adding variables of financial literacy, the *First3days* dummy variable, the *InvestorGroup_Frequency* categorical variable, and the *InvestorGroup_Amount* categorical variable. Investments made within the first three days of the campaign's start date are more local than later investments, while investments from investors who invested on the platform more often than once exhibit a weaker local bias than investments from investors with only one transaction on the platform.

Investments by investors who invested at least 1,000 EUR on the platform are directed towards geographically more distant ventures than those from investors with smaller total investments. In contrast, Investments from investors who invested a total amount of less than 1,000 EUR, but at least 100 EUR, exhibit a greater degree of local bias. Models 2–8 all have higher levels of explanatory power than Model 1, with lower mean squared errors (MSE), lower BIC, and larger R^2. The coefficients for three composite distance measures remain statistically significant in these models. These results lend further support to H1. They show that intangible distance – measured by the disparity in socioeconomic development between the investors' and the investees' states – is a driver of local bias among individual investments, and that the observed effects cannot be explained by other typical drivers of investment decisions, such as investor gender, herding behaviour, personal ties to entrepreneurs, or financial literacy.

Finally, in order to investigate whether intangible distance affects local bias in investments made by female domestic investors to a different extent, we adapt Model 2 and include interaction terms between investor gender (*Female*) and the three composite Mahalanobis distances in Model 9. We find that the signs of the coefficients for the three interaction terms are opposite to those of the three distance variables. This suggests that intangible distance has a significantly smaller effect on the propensity to invest in geographically proximate ventures for female domestic investors than compared to male domestic investors.

4.3 Robustness tests

We conduct a series of robustness tests to ensure the reliability of our results. First, alternative measures of personal ties to entrepreneurs and financial literacy are employed to test whether the results are robust to changes in model specification. Replacing *Investor2Fs*, we use a dummy variable *Investor3Fs* to denote "family members, friends, and fans" of entrepreneurs and to control for pre-existing social ties to entrepreneurs. Following Ralcheva (2023), the dummy variable takes the value of one for individuals who made a single investment into a specific company and did not invest again on the platform, and zero otherwise. Similar to Hornuf et al.

(2022), we add another measure of financial literacy, *Angel-like*, which is a dummy variable that takes the value of one if the amount invested in the focal venture is at least 5,000 EUR, and zero otherwise. Appendix A.5 contains the results of regression models incorporating these two measures. Panel A shows summary statistics of local bias in investments by investor groups – *Investor3Fs* versus other investors and *Angel-like* versus other investors. It also displays the results of the tests of mean and median equality by these investor groups. Out of 44,068 cross-state investments, 16.52% are from family members, friends, and fans of entrepreneurs. On average, they exhibit a local bias of 0.0932, indicating that they are 9.32% more local than the location-neutral benchmark portfolio. In contrast, investments from investors who have no personal ties to entrepreneurs are 4.54% more local than the benchmark portfolio. Both the mean and the median differences between investments from these two groups are statistically significant at the 0.1% level. 1,282 investments are made by angel-like investors, accounting for 2.91% of total cross-state investments. An average cross-state investment from angel-like investors exhibits a local bias of 6.90%, which is larger than the 5.28% local bias of other investments. However, this difference is not statistically significant. The median values of these two types of investments also do not differ significantly.

Panel B in Appendix A.5 presents the estimated coefficients. In addition to controlling for investor gender, herding behaviour, venture characteristics, campaign characteristics, investment weekday, month, year, and state fixed effects, Model 10 includes *Investor3Fs* and the three distance variables for the cross-state investment sample. The coefficient for *Investor3Fs* is positive and statistically significant, confirming that investments from investors with personal ties are more localised than those of their counterparts. Model 11 replicates Model 10 except that *Investor3Fs* is replaced with *Angel-like*. Investments from angel-like investors exhibit a substantially stronger local bias than those from other investors. In both models, all three distance variables are statistically significant, implying that intangible distance has some bearing on the formation of local bias and that our main hypothesis still holds.

Finally, we conducted a robustness test investigating a potential impact of the introduction of the German Small Investors' Protection Act (SIPA) in 2015 on our findings. The results of this test confirm the moderating effect of intangible distance on local bias both pre- and post-SIPA.[11]

Overall, the findings of the empirical analyses indicate that crowd investors exhibit a strong local bias in their cross-state investments. Moreover, intangible distance has a significant influence

[11] The supplemental online appendix OA.2 contains a detailed description of the design and results of this additional test.

on this local bias – and this influence remains significant even after controlling for factors such as investor gender, herding behaviour, pre-existing personal ties, financial literacy, and changes in the regulatory framework. Moreover, we find that the impact of intangible distance on local bias is smaller among female domestic investors than among male domestic investors.

4.4 Limitations

The empirical analysis is subject to certain limitations resulting from shortcomings in the available data. Firstly, we have to rely on location information that is self-reported by the individual investors on the crowdfunding platform. However, investors were not required to provide this information in order to invest in specific campaigns, which is why there should be no incentive for investors to misreport their location strategically. Moreover, while accidental incorrect entries may have occurred, they are likely to be evenly distributed and should therefore not lead to systematic bias. Secondly, and related to the first limitation, we had to use measures of socioeconomic development at the state level, as more granular investor location data (such as postcodes) were not available from the platform. Thirdly, the present study is based solely on ventures promoted on the German crowdfunding platform Companisto and thus implicitly assumes that these ventures adequately reflect the investment opportunity set of the investors included in the sample. While Companisto is one of the largest and oldest platforms in the German market, this may still limit generalisability of the results. Future research might therefore consider using data from other equity crowdfunding platforms to corroborate our findings.

5. Conclusion

Equity crowdfunding is often portrayed as a form of venture financing that has the potential to democratise the supply side of financial investments by reducing barriers for crowd investors including barriers related to (geographical) distance (Butticè & Vismara, 2022; Cumming et al., 2021; Yasar, 2021). However, prior empirical studies on investment localisation in equity crowdfunding failed to support this claim. One of the objectives of the present study was to investigate local bias in individual crowd investors' investment decisions and to shed light on the drivers of this phenomenon. Moreover, we aimed at broadening the perspective on local bias by investigating not only its tangible dimension – geographical distance – but also three intangible dimensions, namely economic, institutional, and cultural distance.

Our empirical results provide evidence of a preference for geographically closer investments among domestic investors in equity crowdfunding. In this context, the analysis contributes to

the literature on online investments, especially equity crowdfunding. In addition, the present study shows that investor gender, herding behaviour, social ties, and financial literacy have some bearing on the localisation of crowd funders' investment decisions. In this regard, the analysis contributes to the literature on the drivers of local bias. Furthermore, the present study adapts the concept of the multidimensionality of distance found in the international business and trade literature to the context of equity crowdfunding. This enables us to examine the influence of economic, institutional, and cultural distance on the investment decisions of private investors. Our results confirm that intangible distance, measured by the disparity in socioeconomic development among states, plays a substantial role in forming local bias in cross-state investments. Moreover, we show that the effect of intangible distance in forming local bias in investments is smaller for female investors than for male investors. Overall, the present study is one of the first to provide a comprehensive discussion and empirical analysis of the role of intangible distance in equity crowdfunding.

The findings have important policy, managerial, and practical implications. They suggest that intangible distance, either separately or combined with geographical distance, plays a part in crowd investors' decision-making process. In particular, they suggest that investors might see disparities in economic development and institutional environment as welcome opportunities to diversify their portfolios. In this regard, economic and institutional distance may even counteract potential negative effects of geographical distance. Cultural distance, however, seems to hinder investment in geographically distant ventures, suggesting that the influence of intangible distance on forming local bias might be a trade-off between the costs related to tangible and intangible barriers to invest and the benefits of exploiting comparative advantages in regional socioeconomic development and diversification. These findings may be of particular interest to policymakers seeking to rebalance socioeconomic development spatially. As the analysis shows that, in spite of its strong reliance on information provision over the internet, local bias is still present in equity crowdfunding, policymakers may choose to strengthen interregional communication and cooperation to help ventures advertise their fundraising campaigns to potential investors in other regions. Finally, from the ventures' point of view, it may make sense to frame their pitches in a way that underscores economic and institutional heterogeneity, and cultural similarity.

Tables

Table 1: Measures of intangible distance

	Measure	Source
Economic distance	Population density (people per square km).	Federal Statistical Office of Germany (destatis.de)
	GDP per capita.	
	Available income per capita.	
	Unemployment rate.	
	Share of students in population.	
	Number of patent applications per 100,000 inhabitants.	
Institutional distance	Self-employment rate.	Institute for SME Research Bonn ("Institute für Mittelstandforschung" in German)
	New Entrepreneurial Initiative ("Neue Unternehmerische Initiative" in German).[12]	Institute for SME Research Bonn ("Institute für Mittelstandforschung" in German)
	Investment volume of venture capitalists.	German Private Equity and Venture Capital Association ("Bundesverband Deutscher Kapitalbeteiligungsgesellschaften" in German)
	Location quotient of the finance and insurance industry as measures of access to traditional financing channels.	Federal Statistical Office of Germany (destatis.de)
Cultural distance	Share of Protestants in the population.	Research Group World Views in Germany, "Forschungsgruppe Weltanschauungen in Deutschland" in German)
	Share of people expressing an affinity to a far right-wing party in the population.	German Socio-Economic Panel data centre
	Gini coefficient.	Federal Statistical Office of Germany (destatis.de)
	Availability of 50 Megabytes Broadband.	Federal Ministry for Economic Affairs and Climate Action ("Bundesministerium für Wirtschaft und Klimaschutz" in German)
	Personal internet use indicator from the D21 digital index.[13]	https://initiatived21.de

[12] The new entrepreneurial initiative is an indicator published by IfM Bonn on a yearly basis since 1998. It measures the number of regional business registrations per 10,000 inhabitants of working age.

[13] The D21 digital index is an annual study conducted by Initiative21.de in Germany to measure digital competences. The relevant question for this item is: "Do you personally use the internet at least occasionally?".

Table 2: Local bias of individual investments by investor group

Investor Group	N	Mean	Median	Std. Dev.	Min	Max	Mean Equality	Median Equality
Total	44068	0.0533	-0.0010	0.444	-0.753	1	****	****
Female	4319	0.0661	-0.0003	0.444	-0.753	1	**	*
Male	39749	0.0519	-0.0011	0.444	-0.753	1		
Investor 2Fs	9598	0.0701	-0.0002	0.457	-0.753	1	****	***
Other	34470	0.0486	-0.0015	0.440	-0.753	1		
First3Days	12267	0.1278	0.0088	0.482	-0.753	1	****	****
Other	31801	0.0245	-0.0025	0.425	-0.753	1		
Frequency =1	7280	0.0932	0.0007	0.466	-0.753	1	****	****
Frequency ϵ [2, 5)	11282	0.0403	-0.0025	0.439	-0.753	1		
Frequency ϵ [5, 10)	9677	0.0384	-0.0019	0.436	-0.753	1		
Frequency >=10	15829	0.0533	-0.0009	0.441	-0.753	1		
Total amount <100	13314	0.0733	0.0008	0.454	-0.753	1	****	****
Total amount ϵ [100, 1000)	16691	0.0425	-0.0022	0.437	-0.753	1		
Total amount ϵ [1000, 5000)	5489	0.0235	-0.0055	0.421	-0.753	1		
Total amount >=5000	8574	0.0623	0.0001	0.456	-0.753	1		

This table presents summary statistics of local bias of individual investments by investor group. It shows results based on 44,068 cross-state investments by 14,636 investors to 94 ventures. One-sample t test and the Wilcoxon signed rank test are performed to investigate whether mean and median local bias differ from zero, respectively. Investors are categorised based on gender, personal ties to entrepreneurs, and investments within in the first three days of the campaign. Two-sample t tests with unequal variance are conducted for mean equality, and the Wilcoxon rank sum tests are conducted for median equality of local bias between these investor groups. Moreover, investors are also grouped based on their investment frequency and total amount of capital invested on the platform. One-way ANOVA and median tests (median regression) are conducted to examine the mean and median equality of local bias between these investor groups. Local bias variables are winsorised at the 5% and 95% levels, respectively. See Appendix A.2 for definitions of variables. *, **, ***, **** denote significance at the 10%, 5%, 1% and 0.1% levels, respectively.

Table 3: Summary statistics of investment-related and investor-related variables

	N	Mean	Median	Standard Deviation	Min	Max
Geographical distance	44068	370.420	393.806	136.360	116.553	580.303
Economic distance	44068	2.343	2.345	0.620	1.386	3.511
Institutional distance	44068	1.879	1.771	0.634	0.949	3.171
Cultural distance	44068	2.028	1.795	0.820	1.015	3.730
Cum.#Investor	44068	0.374	0.325	0.297	0	1.036
Cum.Amount%target	44068	0.443	0.372	0.361	0	1.260
Weekday	44068	2.834	3	1.769	0	6
Month	44068	6.657	7	3.514	1	12
Year	44068	2015.378	2016	1.769	2012	2019
Female	44068	0.0980	0	0.297	0	1
Investor2Fs	44068	0.2178	0	0.413	0	1
First3days	44068	0.278	0	0.448	0	1
InvestorTotal_Frequency	44068	11.315	6	12.107	1	44
InvestorTotal_Amount	44068	4175.733	1500	5969.888	40	22055
InvestorGroup_Frequency	44068	2.773	3	1.107	1	4
InvestorGroup_Amount	44068	2.733	3	0.938	1	4

This table reports summary statistics of investor- and investment-related variables. It shows results based on 44,068 cross-state investments by 14,636 investors to 94 ventures. Continuous variables are winsorised at the 5% and 95% levels, respectively. See Appendix A.2 for definitions of variables.

Table 4: Summary statistics of venture-related and campaign-related variables

	N	Mean	Median	Std. Dev.	Min	Max
TMT_Female	44068	0.160	0	0.366	0	1
TMT_Size	44068	2.325	2	0.926	1	4
TMT_Dr	44068	0.209	0	0.407	0	1
TMT_MBA	44068	0.140	0	0.347	0	1
Company age	44068	4.232	2	4.775	0	18
Software&IT	44068	0.226	0	0.418	0	1
Seed/Startup	44068	0.902	1	0.297	0	1
GmbH	44068	0.838	1	0.369	0	1
Financial info	44068	0.417	0	0.493	0	1
Government loan	44068	0.109	0	0.312	0	1
Award	44068	0.297	0	0.457	0	1
Patent	44068	0.164	0	0.370	0	1
earlyCI	44068	0.124	0	0.330	0	1
Big city	44068	0.679	1	0.467	0	1
Funding target	44068	0.668	0.500	0.567	0.100	2.150
Share offered	44068	0.119	0.111	0.0803	0	0.313
Profit-participating loan	44068	0.862	1	0.345	0	1
Description length	44068	3.842	3.728	0.928	2.509	5.838
#Videos	44068	1.292	1	0.584	1	3
Co-financing	44068	0.0757	0	0.265	0	1
#Available campaigns	44068	2.938	3	10.469	1	5

This table presents summary statistics of venture- and campaign-related variables. It examines the 44,068 cross-state investments by 14,636 investors to 94 ventures. See Appendix A.2 for definitions of variables.

Table 5: Regression analysis of local bias in cross-state investments

Panel A: Impact of venture and campaign characteristics on local bias

(1)					
TMT_Female	0.0337	Government loan	-0.0907	Funding target	0.0713
TMT_Size	-0.00891	Award	0.0169	Share offered	0.521
TMT_Dr	-0.0594	Patent	0.0281	Profit-participating loan	-0.0260
TMT_MBA	0.0167	earlyCI	-0.139	Description length	0.0196
Company age	0.00446	Big city Berlin	-0.137	#Videos	0.0364
Software&IT	0.0491	Big city Hamburg	0.0162	Co-financing	
Seed/Startup	0.0503	Big city Frankfurt	0.153	#Available campaigns	-0.146
GmbH	0.122	Big city Munich	-0.0431		
Financial info	0.00154	Big city Cologne	-0.229		
Weekday, Month, & Year FE	Yes				
State FE	Yes				
N	44068	alpha	1	lambda	0.000562
MSE	0.148	Out-of-sample R^2	0.284	BIC	14428.14

Panel A displays regression results based on 44,068 cross-state investments. Model 1 is the baseline model, including only the venture- and campaign-related variables. Continuous variables are winsorised at the 5% and 95% levels, respectively. Investor state, investment weekday, month, and year dummy variables are incorporated to capture fixed effects. Regression analyses take into account the clustering structure of the data at the investor level. See Appendix A.2 for definitions of variables. *, **, ***, **** denote significance at the 10%, 5%, 1% and 0.1% levels, respectively.

Panel B: Impact of intangible distance on local bias

	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Economic distance	-0.122	-0.122	-0.120	-0.120	-0.121	-0.120	-0.120	-0.125
Institutional distance	-0.0364	-0.0361	-0.0365	-0.0365	-0.0376	-0.0365	-0.0364	-0.0392
Cultural distance	0.0364	0.0363	0.0335	0.0336	0.0347	0.0336	0.0334	0.0376
Female		0.0167	0.0167	0.0128	0.0167	0.0114	0.0155	-0.0379
Cum.#Investor			-0.238	-0.244	-0.184	-0.246	-0.241	
Cum.Amount%target			0.0662	0.0676	0.0896	0.0690	0.0677	
Investor2Fs				0.0242				
First3days					0.0752			
InvestorGroup_Frequency								
ϵ [2, 5)						-0.0286		
ϵ [5, 10)						-0.0325		
>=10						-0.0348		
InvestorGroup_Amount								
ϵ [100, 1000)							0.00295	
ϵ [1000, 5000)							-0.0159	
>=5000							-0.00952	
Female#Economic distance								0.0231
Female#Institutional distance								0.0103
Female#Cultural_distance								-0.00836
Venture control var.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Campaign control var.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Weekday, Month, & Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	44068	44068	44068	44068	44068	44068	44068	44068
alpha	1	1	1	1	1	1	1	0.1
lambda	0.000322	0.000322	0.000353	0.000353	0.000353	0.000353	0.000353	0.00157
MSE	0.145	0.145	0.144	0.144	0.144	0.144	0.144	0.145
Out-of-sample R^2	0.295	0.295	0.304	0.305	0.307	0.305	0.305	0.296
BIC	14218.99	14224.82	14055.82	14051.17	14037.26	14060.41	14077.83	14419.89

Panel B reports regression results based on 44,068 cross-state investments. Model 2 extends the baseline Model 1 by adding the three Mahalanobis distances derived from the state development disparity variables. Models 3 and 4 further add investor gender and herding behaviour variables, respectively. Personal ties to entrepreneurs are controlled for in Model 5, while Models 6–8 further incorporate measures of investor financial literacy, namely investment within the first 3 days of the campaign window, financial literacy groups based on the total number of campaigns and the total amount of capital invested on the platform. Model 9 extends Model 3 by adding the interaction terms between Female and the distance measures. Continuous variables are winsorised at the 5% and 95% levels, respectively. Investor state, investment weekday, month, and year dummy variables are also included to capture fixed effects. Regression analyses take into account the clustering structure of the data at the investor level. See Appendix A.2 for definitions of variables. *, **, ***, **** denote significance at the 10%, 5%, 1% and 0.1% levels, respectively.

Appendix

A.1 Sample selection

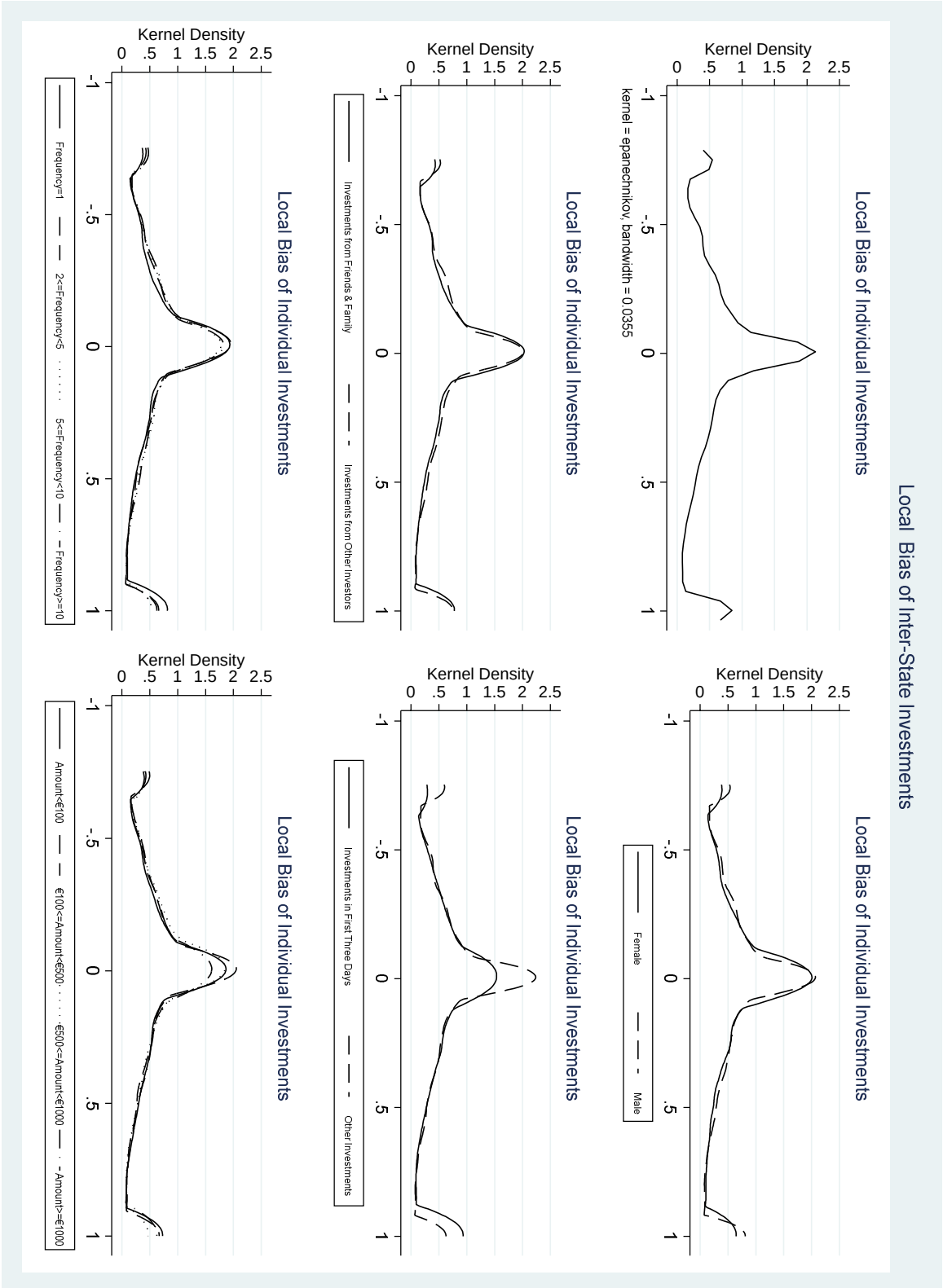
Step	# projects	# investors	# investments	Reason
1	104			Of 107 campaigns listed on the platform on 17 May 2019, two are still ongoing on 17 May 2019 ("vanilla bean" and "KoRo2"), one campaign ("WIE MÄNNER ÜBER FRAUEN REDEN") is about producing a film. → excluded.
2	100			No information about investors 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.
10	94	14,636	44,068	709 Germany-to-Austria investments and 6,646 intra-state investments. → excluded.

A.2 Description of variables used in the study

Variable	Description	Source
Dependent variable		
$Local\_bias_{ij}$	Indicates how much closer investor *i* is to her investment target *j* than to the average benchmark venture, expressed as a fraction of her distance from the benchmark venture.	Companisto (companisto.com/de/investments), own calculation
Investor-related variable		
Female	Dummy variable=1 if the investment is from a female; 0 otherwise.	Companisto
Investor2Fs	Dummy variable=1 if the investment is from family or friends of the entrepreneur; 0 otherwise.	Companisto, own calculation
First3days	Dummy variable=1 the investor's investment took place in the first three days of the funding campaign; 0 otherwise.	
#Venture invested	Number of investments from a certain investor on the platform.	
Total Amount invested	Total amount of money pledged by a certain investor on the platform.	
InvestorGroup_Frequency	Categorical variable, taking values from zero to three for investors who invest on the platform only, 2-4 times, 5-9 times, and 10 times or more,	
InvestorGroup_Amount	Categorical variable, taking values from zero to three for investors who pledge on the platform in total less than 100 EUR, 100-999 EUR, 1000-4999 EUR, and 5000 EUR or more, respectively.	
Angel-like	Dummy variable, equal to 1 if the investor invests at least 5000 EUR in the focal campaign; 0 otherwise.	
Investor3Fs	Dummy variable, equal to 1 if the investment is from a family member or a friend or a fan of the entrepreneur; 0 otherwise.	
Investor state	Categorical variables for the federal state the investor is living in.	Companisto
Investment-related variable		
Cum.#Investor	Number of investors by the previous day, in thousands.	Companisto, own calculation
Cum.Amount%target	Total amount as a percentage of target by the previous day.	
Weekday	Weekday on which the investment took place.	
Month	Month in which the investment took place.	
Year	Year in which the investment took place.	

Variable	Description	Source
Venture-related variable		
TMT_Female	Dummy variable=1 if at least one TMT member is female; 0 otherwise.	Companisto
TMT_Size	Number of TMT members.	
TMT_Dr	Dummy variable=1 if at least one TMT member holds a doctoral title; 0 otherwise.	
TMT_MBA	Dummy variable=1 if at least one TMT member holds an MBA degree; 0 otherwise.	
Company age	Number of years since the company's foundation.	
Software&IT	Dummy variable=1 if the company belongs to the software & IT solution industry; 0 otherwise.	
Seed/Startup	Dummy variable=1 if the company is in its seed stage; 0 otherwise.	
GmbH	Dummy variable=1 if the company uses the legal form of limited liability company ("Gesellschaft mit beschränkter Haftung" in German); 0 otherwise.	
Financial info	Dummy variable=1 if historical financial reports are available on the German company register Bundesanzeiger.	Bundesanzeiger (www.bundesanzeiger.de/pub/de/start?4)
Government loan	Dummy variable=1 if the company has received a loan from the government; 0 otherwise.	Companisto
Award	Dummy variable=1 if the company has received an award; 0 otherwise.	
Patent	Dummy variable=1 if the company owns / has submitted application for a patent; 0 otherwise.	
earlyCI	Dummy variable=1 if the company pursues its follow-up equity crowdfunding; 0 otherwise.	
Big city	Categorical variable with the value of 1 to 5 if the company is located in Berlin, Cologne, Hamburg, Frankfurt, Munich, respectively; 0 otherwise.	
Campaign-related variable		
Funding target	Funding target in millions.	Companisto
Share offered	Proportion of shares offered to investors in profit and value participation.	
Profit-participating loan	Dummy variable=1 if the financing instrument Profit-Participating Loan is employed; 0 otherwise.	
Description length	Length of the description as the total number of characters (letters, numbers, spaces, and punctuation marks) in thousands.	
#Videos	Number of pitch videos.	
Co-financing	Dummy variable=1 if the venture is simultaneously co-invested by professional investors; 0 otherwise.	
#Available campaigns	Number of projects listed on the platform available for investments at the time when a given investment decision is made.	Companisto, own calculation

A.3 Kernel density estimation of investments' local bias by investor group



A.4 Tests for multicollinearity

Panel A: Correlation matrix for the cross-state investment sample

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	Local bias_Investment	1																		
2	Economic distance	-0.0322*	1																	
3	Institutional distance	0.0118*	0.4771*	1																
4	Cultural distance	0.0769*	0.4423*	0.4280*	1															
5	Female	0.0095*	-0.0073	-0.0067	0.0100*	1														
6	Cum.#Investor	-0.0809*	-0.0387*	-0.0179*	-0.0850*	0.0170*	1													
7	Cum.Amount%target	-0.1206*	0.0315*	0.0275*	-0.0368*	0.0087	0.7446*	1												
8	Investor2Fs	0.0200*	-0.0282*	-0.0254*	-0.0147*	0.1521*	0.1465*	0.1001*	1											
9	First3days	0.1042*	-0.0127*	0.0117*	0.0222*	-0.0123*	-0.6346	-0.5910*	-0.1050*	1										
10	InvestorGroup_Frequency	-0.0200*	0.0182*	0.0320*	0.0205*	-0.1663*	-0.2152*	-0.1631*	-0.7191*	0.1652*	1									
11	InvestorGroup_Amount	-0.0263*	-0.0037	-0.0148*	-0.0295*	-0.1097*	-0.0811*	-0.0498*	-0.4040*	0.0700*	0.5020*	1								
12	Investor3Fs	0.0400*	-0.0246*	-0.0225*	-0.0148*	0.1524*	0.1071*	0.0601*	0.8097*	-0.0695*	-0.7127*	-0.3696*	1							
13	Angel-like	-0.0075	0.0052	0.0013	-0.0127*	-0.0665*	-0.0740*	-0.0516*	-0.2403*	0.0661*	0.3517*	0.7673*	-0.2099*	1						
14	TMT_Female	0.0328*	-0.0666*	-0.0557*	-0.0629*	0.0357*	0.0750*	0.0221*	0.0125*	-0.0222*	-0.0205*	0.0215*	0.0122*	0.0023	1					
15	TMT_Size	0.0514*	-0.0839*	-0.0359*	-0.1009*	0.0193*	0.1098*	0.0631*	0.0901*	0.003	-0.0666*	-0.1313*	0.0772*	-0.0855*	0.1476*	1				
16	TMT_Dr	-0.0315*	0.1436*	-0.0266*	0.0123*	-0.0235*	0.0120*	-0.0339*	-0.0331*	-0.0346*	-0.0116*	0.0495*	-0.0151*	0.0253*	0.0611*	-0.0403*	1			
17	TMT_MBA	0.0697*	0.0735*	0.1201*	0.0051	-0.0053	0.0833*	0.0827*	0.0015	0.0175*	-0.0076	-0.0148*	0.0099*	-0.0043	0.1267*	0.0084	0.1019*	1		
18	Company age	0.0234*	0.0275*	0.0183*	0.0185*	-0.0216*	0.1380*	0.0902*	-0.0435*	-0.0295*	0.0124*	0.1344*	-0.0452*	0.0852*	0.0845*	-0.4201*	0.0775*	0.0595*	1	
19	Software&IT	0.0382*	-0.0064	-0.0613*	0.0123*	-0.0186*	-0.1333*	-0.0539*	0.0037	-0.0227*	-0.0063	-0.0104*	0.0075	-0.0063	-0.1703*	0.0357*	0.2790*	0.0395*	-0.0848*	1
20	Seed/Startup	-0.0208*	0.0154*	0.0679*	0.0764*	0.0159*	-0.1147*	-0.0544*	0.0296*	-0.0066	-0.0031	-0.0884*	0.0201*	-0.0590*	-0.0152*	0.1399*	-0.0549*	-0.0499*	-0.4926*	0.0687*
21	GmbH	0.0138*	-0.0043	0.0737*	0.0909*	-0.0014	-0.0587*	0.0289*	0.0087	0.0412*	0.0215*	-0.0380*	-0.0074	-0.0203*	-0.1591*	0.0558*	-0.1128*	-0.1302*	0.0083	-0.0110*
22	Financial info	0.0321*	0.0488*	0.0221*	0.0611*	-0.0106*	0.1319*	0.1288*	-0.0289*	0.0131*	-0.0178*	0.0733*	-0.0241*	0.0358*	0.1280*	-0.1051*	0.1250*	0.0290*	0.4826*	-0.2577*
23	Government loan	-0.0941*	0.0245*	-0.0294*	0.0392*	-0.0076	-0.1036*	-0.0229*	-0.0105*	-0.0334*	0.0047	0.0076	-0.0025	0.0007	0.0500*	-0.0053	0.2393*	-0.1410*	-0.1544*	0.0411*
24	Award	-0.0237*	-0.0255*	-0.0381*	-0.0875*	-0.0223*	0.0202*	0.1073*	-0.0447*	-0.0648*	0.0240*	0.0905*	-0.0326*	0.0596*	-0.0749*	0.0855*	0.0210*	-0.0932*	0.0282*	0.2310*
25	Patent	0.005	0.1024*	0.0365*	0.0970*	-0.0273*	0.0132*	-0.1338*	-0.0681*	-0.0255*	0.0219*	0.1180*	-0.0490*	0.0741*	0.0024	-0.2543*	0.4745*	0.0053	0.2285*	-0.1207*
26	earlyCI	-0.0437*	0.004	-0.0756*	-0.0567*	0.0217*	0.0519*	0.0371*	0.0250*	0.0363*	-0.0392*	0.0439*	0.0113*	0.0232*	-0.1638*	-0.0709*	0.0089	-0.0327*	0.2398*	0.0332*
27	Big city	-0.0067	-0.0381*	-0.0534*	-0.0954*	0.0139*	-0.0140*	0.0344*	0.0230*	0.0152*	-0.0126*	-0.0182*	0.0226*	-0.0159*	0.0263*	0.0904*	-0.1055*	0.2088*	-0.2160*	0.1124*
28	Funding target	0.0039	-0.1231*	-0.1930*	-0.1173*	-0.0154*	0.2872*	-0.0969*	-0.0043	-0.0611*	-0.0315*	0.1355*	-0.0043	0.0768*	0.0895*	-0.2152*	0.1507*	-0.0571*	0.4105*	-0.1784*
29	Share offered	0.1187*	-0.0362*	0.0490*	0.0191*	0.0295*	0.1002*	-0.0386*	0.0811*	-0.0053	-0.0737*	-0.1076*	0.0772*	-0.0710*	0.0036	0.2811*	-0.0398*	0.1584*	-0.4613*	-0.0191*
30	Profit-participating loan	-0.0347*	-0.0258*	0.0222*	-0.0894*	-0.0104*	0.1061*	-0.0882*	-0.0054	-0.0045	0.0189*	0.0063	-0.0069	0.0043	-0.0290*	0.1382*	-0.0023	0.0906*	-0.3266*	-0.1324*
31	Description length	0.0503*	-0.1070*	0.0078	-0.0036	0.0436*	0.0141*	-0.0109*	0.0602*	0.1015*	-0.0181*	-0.1545*	0.0434*	-0.0882*	-0.0610*	0.3077*	-0.1375*	0.0720*	-0.2102*	0.0180*
32	#Videos	-0.0310*	-0.0668*	-0.0468*	-0.0473*	-0.0226*	0.0725*	-0.0094*	-0.0225*	-0.0097*	0.0289*	0.0107*	-0.0282*	0.0192*	-0.0940*	0.1148*	0.0046	-0.0744*	-0.0093	-0.0660*
33	Co-financing	-0.0353*	-0.0519*	-0.1885*	-0.1008*	-0.0037	0.1670*	0.0509*	0.0005	-0.0330*	-0.0279*	0.1024*	-0.0074	0.0527*	0.1488*	-0.1218*	0.0988*	-0.0581*	0.2363*	-0.1545*
34	#Available campaigns	-0.3558*	-0.0062	0.0259*	-0.0372*	-0.0148*	0.1719*	0.2624*	-0.0276*	-0.1319*	0.0216*	0.0438*	-0.0517*	0.0198*	-0.0151*	-0.1345*	0.0004	-0.0476*	0.0164*	-0.0326*
35	Weekday	-0.0208*	0.0064	0.0051	-0.0145*	-0.0034	0.0724*	0.0676*	-0.0042	-0.0900*	-0.0054	0.0149*	-0.0064	0.0098*	-0.0066	-0.0217*	0.0178*	0.0100*	0.0271*	-0.0154*
36	Month	-0.0137*	0.0140*	-0.0438*	0.0201*	-0.0016	0.0264*	0.0891*	-0.0144*	-0.0157*	-0.0029	0.0643*	-0.0110*	0.0338*	0.0790*	-0.0443*	0.0241*	-0.0204*	0.0853*	0.0057
37	Year	-0.0835*	0.0528*	-0.0148*	-0.1351*	-0.0574*	0.0661*	0.1005*	-0.0980*	-0.1112*	0.0287*	0.2544*	-0.0744*	0.1535*	0.0365*	-0.3454*	0.1540*	-0.0097*	0.3215*	-0.0423*
38	Companist state	0.0969*	0.1240*	0.1034*	0.2077*	-0.0029	-0.0025	0.0033	-0.001	-0.0129*	0.0058	-0.0054	0.0022	0.0165*	0.0048	-0.0222*	0.0024	-0.008	0.0216*	0.0023

		20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
20	Seed/Startup	1																		
21	GmbH	-0.0211*	1																	
22	Financial info	-0.2353*	0.0372*	1																
23	Government loan	0.1153*	0.0901*	-0.2019*	1															
24	Award	-0.1134*	0.1314*	-0.0384*	0.1094*	1														
25	Patent	-0.1484*	-0.1523*	0.2750*	0.1709*	-0.0518*	1													
26	earlyCI	-0.1533*	0.0537*	0.1308*	-0.0684*	0.0091	0.0559*	1												
27	Big city	0.0991*	0.0148*	-0.1174*	-0.0781*	0.0742*	-0.1557*	0.0280*	1											
28	Funding target	-0.3508*	-0.1668*	0.2301*	-0.1718*	-0.0276*	0.3737*	0.2534*	-0.0132*	1										
29	Share offered	0.3913*	0.0023	-0.3666*	0.1680*	-0.1337*	-0.1330*	-0.0871*	0.1218*	-0.1223*	1									
30	Profit-participating loan	0.1683*	0.1405*	-0.1594*	-0.0012	0.1343*	0.0714*	-0.0891*	0.1657*	0.1039*	0.4245*	1								
31	Description length	-0.0184*	0.0926*	-0.1390*	-0.1939*	-0.0197*	-0.2395*	0.1057*	0.1236*	-0.2212*	0.1855*	0.1822*	1							
32	#Videos	-0.3016*	-0.0368*	-0.0032	0.0149*	0.1103*	0.1785*	-0.0839*	-0.0948*	0.1972*	-0.1771*	0.0982*	0.1096*	1						
33	Co-financing	0.0276*	-0.1458*	0.3077*	-0.1001*	-0.0244*	0.1972*	0.1872*	0.2528*	0.6033*	-0.1338*	0.1147*	-0.2105*	0.0797*	1					
34	#Available campaigns	0.0424*	0.0596*	0.0001	0.0211*	0.1154*	0.0061	-0.0528*	-0.0122*	0.0371*	-0.1341*	0.1597*	-0.0427*	0.1016*	0.0573*	1				
35	Weekday	-0.0162*	-0.0124*	-0.0112*	0.0386*	0.0180*	0.0298*	0.0041	-0.0121*	0.0315*	0.0076	0.0016	-0.0514*	0.0005	0.0213*	-0.0122*	1			
36	Month	-0.1262*	-0.0637*	0.2336*	-0.1064*	-0.0061	-0.0111*	0.0435*	-0.0323*	0.0944*	-0.2045*	-0.1216*	-0.0609*	-0.0135*	0.1548*	-0.0306*	-0.0157*	1		
37	Year	-0.1549*	-0.1273*	0.2165*	0.1111*	0.3229*	0.3532*	0.0488*	-0.0631*	0.3427*	-0.2097*	0.1733*	-0.6132*	-0.0123*	0.3076*	0.2009*	0.0691*	-0.0665*	1	
38	Companist state	-0.0071	-0.0071	0.0116*	0.0051	0.0021	0.0012	0.0097*	-0.001	0.0027	-0.0202*	-0.0224*	-0.0172*	-0.0023	-0.0035	0.0064	0.0057	-0.0108*	0.0077	1

* denotes significance at the 5% level.

Panel B: Variance inflation factors (VIF)

Variable	VIF	1/VIF
Economic distance	1.46	0.685
Institutional distance	1.47	0.682
Cultural distance	1.37	0.730
Cum.#Investor	3.72	0.269
Cum.Amount%target	3.45	0.290
TMT_Size	1.43	0.698
Company age	1.80	0.555
Funding target	2.09	0.478
Share offered	1.53	0.655
Description length	1.21	0.830
#Videos	1.18	0.848
#Available campaigns	1.15	0.867
Mean VIF	1.82	

Panel C: VIF after incorporating categorical variables

Variable	VIF	1/VIF	Variable	VIF	1/VIF
Economic distance	3.09	0.324	GmbH	1.7	0.588
Institutional distance	2.28	0.438	Financial info	2.43	0.411
Cultural distance	3.10	0.323	Government loan	1.71	0.585
Female	1.01	0.986	Award	1.88	0.533
Cum.#Investor	5.03	0.199	Patent	2.50	0.400
Cum.Amount%target	4.91	0.204	earlyCI	1.66	0.601
TMT_Female	1.56	0.639	Funding target	5.61	0.178
TMT_Size	2.16	0.462	Share offered	2.64	0.379
TMT_Dr	2.20	0.455	Profit-participating loan	3.32	0.301
TMT_MBA	1.83	0.546	Description length	3.60	0.277
Company age	3.61	0.277	#Videos	1.98	0.505
Software&IT	1.91	0.523	Co-financing	4.38	0.228
Seed/Startup	2.77	0.361	#Available campaigns	1.61	0.620
Mean VIF	7.16				

Note: To save space, the VIF values for the control variables *Weekday*, *Month*, *Year*, *Big city*, and *Investor state* are not reported. Investor type and social network variables are not included in the analysis.

A.5 Results from regression models incorporating *Investor3Fs* and *Angel-like*

Panel A: Local bias of individual investments

Investor Group	N	Mean	Median	Std. Dev.	Min	Max	Mean Equality	Median Equality
Investor 3Fs	7280	0.0932	0.0007	0.466	-0.753	1	****	****
Other	36788	0.0454	-0.0018	0.439	-0.753	1		
Angel-Like	1282	0.0690	-0.0001	0.478	-0.753	1		
Other	42786	0.0528	-0.0010	0.443	-0.753	1		

Panel A presents summary statistics of local bias of individual investments by investor groups. Results are based on 44,068 cross-state investments by 14,636 investors to 94 ventures. Investors are categorised based on personal ties to entrepreneurs (Family, Friends, and Fans), and financial literacy measured by Angel-like. Two-sample t tests with unequal variance are conducted for mean equality and the Wilcoxon rank sum tests are conducted for median equality of local bias between these investor groups. Local bias variables are winsorised at 5% and 95% levels. See Appendix A.2 for definitions of variables. *, **, ***, **** denote significance at the 10%, 5%, 1% and 0.1% levels, respectively.

Panel B: Impact of socioeconomic development disparity on local bias

	(10)	(11)
Economic distance	-0.120	-0.120
Institutional distance	-0.0365	-0.0363
Cultural distance	0.0336	0.0335
Female	0.0115	0.0166
Cum.#Investor	-0.246	-0.237
Cum.Amount%target	0.0692	0.0649
Investor3Fs	0.0311	
Angel-like		0.00290
Venture & campaign controls	Yes	Yes
Weekday, Month, Year & State FE	Yes	Yes
Investor Gender & Herding	Yes	Yes
N	44068	44068
alpha	1	1
lambda	0.000353	0.000388
MSE	0.144	0.144
Out-of-sample R^2	0.305	0.304
BIC	14041.540	14065.730

Panel B shows regression results of robustness checks. The dependent variable is local bias of the cross-state investments. Models 10 and 11 incorporate the three Mahalanobis distances derived from the investing state's socioeconomic development variables. Model 10 further adds for personal ties to entrepreneurs (Family, Friends and Fans). In Model 11, *Angel-like*, a measure of financial literacy is controlled for. Continuous variables are winsorised at 5% and 95% levels. Investor state, investment weekday, month, and year dummy variables are also included to capture fixed effects in these models. Regression analyses take into account the clustering structure of the data at the investor level. See Appendix A.2 for definitions of variables. *, **, ***, **** denote significance at the 10%, 5%, 1% and 0.1% levels, respectively.

Supplemental Online Appendix

OA.1 Description of control variables used

Investor-specific variables

Firstly, there is ample evidence that female investors are more risk-averse (Croson & Gneezy, 2009; Felton et al., 2003; Mohammadi & Shafi, 2018; Powell & Ansic, 1997), have lower confidence in the investment decision process (Barber & Odean, 2001; Estes & Hosseini, 1988), and adopt more conservative investment strategies (Baeckstrom et al., 2021; Hervé et al., 2019; Watson & McNaughton, 2007) than male investors. Hence, it is likely that female investors exhibit a stronger preference for geographically closer ventures than male investors, as they are more concerned with reducing the uncertainty and potential agency risks associated with their investments. Moreover, Vismara et al. (2017) and Ewens and Townsend (2020) identified gender-related homophily in equity crowdfunding. This suggests that female investors may be more likely to pledge money to female-led ventures, regardless of the location of these ventures.

Secondly, herding – both rational and irrational – has also been shown to affect the extent to which crowd investors prefer geographically closer ventures. Investors exhibiting irrational herding behaviour tend to passively mimic others' investment choices while neglecting available firm-specific information (Croson & Shang, 2008; Simonsohn & Ariely, 2008; Zhang & Liu, 2012). When rational herding occurs, however, investors take others' investment decisions into account and, based on their own information, make rational inferences about the value of targets (Banerjee, 1992; Bikhchandani et al., 1992; Devenow & Welch, 1996; Hirshleifer & Teoh, 2003; Petit & Wirtz, 2022; Vismara, 2018; Zhang & Liu, 2012). In both cases, investors attach less importance to the potentially lower agency costs associated with local investments (Hornuf et al., 2022), which implies that their investment decisions are less likely to be location-sensitive.

Thirdly, existing social networks are another important factor affecting investor decisions. Individuals with social ties to the entrepreneur – especially family members and friends – are more likely to invest in the venture, regardless of its location. On the one hand, they may support the entrepreneur in order to fulfil a social obligation (Agrawal et al., 2015). On the other hand, they may have a close personal relationship with the entrepreneur and are therefore familiar with the project, implying an informational advantage arising from to the social network (Agrawal et al., 2015). In addition, compared with investors outside the social network, the risk of traditional principal-agent problems arising tends to be lower, and respective problems tend to be easier to solve (Hornuf et al., 2022).

Fourthly, the we need to control for financial literacy, as the latter implies that investors are better able to acquire and process information (Abreu & Mendes, 2010; Goetzmann & Kumar, 2008; Hornuf et al., 2022), and are less susceptible to behavioural biases (Dimmock et al., 2016).

In order to account for the aforementioned investor-specific factors, we employ the following control variables:

(1) The gender of the investor, *Female*, a dummy variable taking the value of one if the investment is from a female and zero otherwise.

(2) Two measures of herding behaviour: *Cum.#Investor* the number of investors by the previous day, *Cum.Amount%target* total amount of capital collected as a percentage of target by the previous day.

(3) *Investor 2Fs*, a dummy variable, which takes the value of one if the investor is categorised as family and friends of the entrepreneur and zero otherwise. Adopting the definitions used by Hornuf et al. (2022), we class family and friends as investors whose first and largest investment on the platform is to the focal start-up and who invest in no more than three other start-ups.

(4) Three measures of investment literacy based on characteristics of their investments on the platform. The dummy variable *First3Days* takes the value of one if the investor's investment takes place in the first three days of the funding campaign and zero otherwise. The categorical variables *InvestorGroup_Frequency* and *InvestorGroup_Amount* are included in order to group investors based on their overall investments on the platform (#*Venture invested* and *Total amount invested*). They take values from zero to three for investors that invest on the platform only once, 2–4 times, 5–9 times, and 10 times or more and for investors who pledge on the platform in total less than 100 EUR, 100–999 EUR, 1,000–4,999 EUR, and 5,000 EUR or more, respectively. In a robustness check, we follow Hornuf et al. (2022) and use a dummy variable *Angel-like* to proxy the investors' professionalism, which takes the value of one if the investor invests at least 5,000 EUR in the venture and zero otherwise. In another robustness check, we use family, friends, and fans instead of family and friends as a measure of social network. Following Ralcheva (2023), individuals who made a single investment in a specific company and had no intention of investing again on the platform are considered to belong to this category. The investor-related variables are also meant to control for unobservable characteristics that are shared among groups of investors, such as income levels, risk attitudes, and a preference for the platform Companisto.

In addition to these investor-specific controls, we also employ the following investment-, venture- and campaign-related control variables:

Investment-specific variables

Weekday, *Month*, and *Year* dummies are added to eliminate any time-variant effect. *Investor state* dummies are included to take account of any potential heterogeneity in dimensions other than economic, institutional, and cultural dimensions, observable or unobservable, among the German federal states.

Venture-specific variables

Characteristics of the top management team (TMT, managing directors and founders who do not hold director positions in the venture) are taken into account, as they influence venture performance and thus crowd out investors' decision-making. The following dummy variables are considered: *TMT_Female* (to measure the presence of females in the team), *TMT_Size* (which denotes the size of the team), and *TMT_Dr* and *TMT_MBA* (which indicate whether team members hold any doctoral degrees or MBA degrees, respectively). Moreover, ventures that are young, at the seed or early stage, or in the software/IT sector are often viewed as being high risk yet high return, and investors might exhibit a preference for these ventures. Therefore, we incorporate *Company age*, *Company stage* (Seed/Startups), and *Company industry* (Software&IT) into the analysis. *GmbH* is a dummy variable controlling for the different ventures' legal registration forms and corresponding common characteristics within each. It takes the value of one if the venture was established in the legal form of GmbH (limited liability company, "Gesellschaft mit beschränkter Haftung") and zero otherwise. The dummy variable *Financial info* indicates the availability of financial reports on the German company register ("Bundesanzeiger"). Two dummy variables *Government_loan* and *Award* – being supported by government loan and having received awards, respectively – serve as third-party accreditation and recognition. *Patent* is a dummy variable used to control for the intellectual capital of the venture. *EarlyCI* is a dummy variable taking the value of one in the event that the venture has already successfully pursued equity crowdfunding and zero otherwise. In addition, we incorporate *Big city* fixed effects. For this, five metropolitan cities are considered. Berlin and Cologne are included due to their broad customer base, international investor base, size of their universities, and prominent start-up environment, Hamburg due to its relevance to the media sector, Frankfurt due to its relevance to the financial services sector, and Munich due to its relevance to the technology sector and the size of its universities.

Campaign-specific variables

We include *Funding target* (in millions), the proportion of shares offered to investors in profit and value participation (*Share offered*), financing instrument (*Profit-participating loan*),

Description length (the number of letters, numbers, spaces, and punctuation marks), and the number of *Videos*. Moreover, *Co-financing* is a dummy variable that takes account of the fact that on Companisto, it is possible for ventures to launch equity crowdfunding campaigns while being simultaneously co-invested by professional investors. Furthermore, *#Available campaigns* controls for the number of projects listed on the platform available for investments at the time when a given investment decision is made.

OA.2 Local bias of individual investments in pre- and post-SIPA campaigns

We conducted a robustness test to investigate the potential impact of the introduction of the German Small Investors Protection Act (SIPA, 'Kleinanlegerschutzgesetz'), which came into effect on 3 July 2015, on our results. This new legislation classified subordinated profit-participating loans – the financing instrument most commonly employed for equity crowdfunding in Germany – as investment products, subjecting them to the prospectus requirement under the German Investment Products Act (GIPA, 'Vermögensanlagengesetz'). With this change, ventures seeking capital via equity crowdfunding were, for the first time, required to prepare an issuance prospectus. They were, however, exempt from this requirement if the maximum funding amount did not exceed 2.5 million EUR (§ 2a Abs. 1 GIPA) and the investment of each individual investor per venture was not more than 10,000 EUR (§ 2a GIPA para. 3 no 2) or 25,000 EUR (§ 2a GIPA para. 3 no. 3) ('Crowdfunding Exception').[14] In this case, ventures only needed to provide a three-page information leaflet ('Vermögensanlagen-Informationsblatt') containing information about the company and risks of investing in the equity crowdfunding campaign.

This increase in disclosure requirements due to the introduction of SIPA may have alleviated information asymmetries, and weakened potential bias driven by distance. Moreover, SIPA set investment limits per issuer, which may have had significant impact on investment behaviour: Investors wishing to pledge more than 1,000 EUR to a single issuer had to self-report their income and/or level of wealth to the platform ($ 2a GIPA). If they intended to invest more than 10,000 EUR in a single venture, this had to be done through a corporate entity. As Goethner et al. (2021) show, large investments have become less frequent since the introduction of SIPA, suggesting that sophisticated investors may have left the market, weakening an important signalling channel for small investors. While investments close to or at the 1,000 EUR threshold seem to have occurred more frequently under SIPA, these were unlikely to have the same signalling effect as larger investments made by sophisticated investors. Thus, overall, crowd investors' information environment changed substantially with the introduction of SIPA in 2015, and it is unclear how this change may have affected the relevance of distance to their investment behaviour.

[14] On 15 July 2019, an amendment to GIPA came into effect. Since then, ventures have been permitted to raise up to 6 million EUR without the requirement to issue a prospectus, and crowd investors have been allowed to pledge a maximum of 25,000 EUR to a single issuer. As this legal change occurred after the end of the study's sample period, its potential influence is outside its scope.

Crowd investors' decision-making is most likely affected by the evolution of information and communication technology and by the regulatory framework. We expect the introduction of SIPA on 3 July 2015 to have influenced the information environment faced by crowd investors. It may even have alleviated information asymmetries between entrepreneurs and crowd investors, inducing crowd investors to rely less on local information and therefore exhibiting a weaker preference for geographically closer targets. Moreover, by defining an investment limit per issue, the introduction of SIPA may have driven some sophisticated investors out of the market and thereby eliminated an important signalling channel for small investors. Consequently, the investment behaviours of small investors may have changed since then. We therefore test whether our results are robust to the introduction of SIPA. We split the sample into two subsamples by using the introduction of the SIPA on 3 July 2015 as the cut-off point, with one subsample covering investments in pre-SIPA campaigns and the other subsample covering investments in post-SIPA campaigns. Table OA.2.a contains respective descriptive statistics.

Table OA.2.a: Local bias of individual investments

Investments	N	Mean	Median	Std. Dev.	Min	Max	Mean Equality	Median Equality
Pre-SIPA	19189	0.112	0.0007	0.474	-0.753	1	****	****
Post-SIPA	24879	0.008	-0.0068	0.414	-0.753	1		

This table presents summary statistics of local bias of individual investments to campaigns starting before and after SIPA became binding. Results are based on 44,068 cross-state investments. Two-sample t tests with unequal variance are conducted for mean equality and the Wilcoxon rank sum tests are conducted for median equality of local bias of investments before and after the introduction of the SIPA. Local bias variables are winsorised at the 5% and 95% levels, respectively. See Appendix A.2 for definitions of variables. *, **, ***, **** denote significance at the 10%, 5%, 1% and 0.1% levels, respectively.

Table OA.2.a shows that an average cross-state investment made in campaigns starting before the introduction of SIPA exhibits a local bias of 0.1124, indicating that it is 11.24% more local than a location-neutral benchmark portfolio. In contrast, an average cross-state investment made in campaigns starting no earlier than the SIPA implementation is only 0.77% more local than the relative benchmark portfolio – a substantially lower level of local bias than that before the SIPA was introduced (statistically significant at the 0.1% level).

In Table OA.2.b, the local bias of cross-state investments made to pre-SIPA campaigns is regressed on the three Mahalanobis distances derived from the state development disparity

variables. We find that the three distance variables are statistically significant in all models, indicating that the disparity in socioeconomic development between the investing and the investee state is a driver of investment local bias. Thus, our main hypothesis is supported for the pre-SIPA investment subsample. In particular, the relationship between economic distance and local bias is still negative, while the relationship between local bias and cultural distance is still positive. Moreover, both effects seem to be stronger in the pre-SIPA sample than in the full sample. Institutional distance tends to have a positive influence on local bias prior to the introduction of SIPA, but the effect size seems to be substantially smaller. This finding suggests that in the early stage of equity crowdfunding, investors may have been more concerned about the risks associated with cultural and institutional differences between regions and, in this regard, may have been more reluctant to invest in geographically distant ventures. Moreover, herding behaviour, measured by the total number of investors attracted by the day before an investment, mitigates local bias in investments. Furthermore, a significantly larger local bias is found among investments made within the first three days of the campaign's starting date. Additionally, investments from investors with personal ties to entrepreneurs exhibit a slightly stronger local bias. Financially more literate investors who invested in more ventures direct their cross-state investments to more distant ventures compared to their counterparts. Investors who pledge an aggregate amount of between 1,000 EUR and 5,000 EUR on the platform exhibit a slightly greater preference for geographically distant ventures, but those who invest more than 5,000 EUR do not seem to distinguish between geographically more or less proximate ventures. Finally domestic investors pledging between 100 EUR and 1,000 EUR in total on the platform show a significantly stronger local bias.

Table OA.2.b: Local bias of cross-state investments to pre-SIPA campaigns

	(2a)	(3a)	(4a)	(5a)	(6a)	(7a)	(8a)
Economic distance	-0.181	-0.181	-0.183	-0.183	-0.184	-0.182	-0.182
Institutional distance	0.00260	0.00265	0.00134	0.00132	0.00165	0.00133	0.00114
Cultural distance	0.0794	0.0793	0.0839	0.0838	0.0842	0.0837	0.0835
Female		0.00643	0.00546	0.00476	0.00557	0.00390	0.00541
Cum.#Investor			-0.268	-0.268	-0.220	-0.268	-0.268
Cum.Amount%target			-0.0311	-0.0311	0.0260	-0.0306	-0.0310
Investor2Fs				0.00354			
First3days					0.0832		
InvestorGroup_ Frequency							
ϵ [2, 5)						-0.0102	
ϵ [5, 10)						-0.00233	
>=10						-0.0119	
InvestorGroup_ Amount							
ϵ [100, 1000)							0.0144
ϵ [1000, 5000)							-0.0000097
>=5000							
Venture control var.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Campaign control var.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Weekday, Month, & Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	19,189	19,189	19,189	19,189	19,189	19,189	19,189
alpha	1	1	1	1	1	1	1
lambda	0.000234	0.00023	0.000111	0.00011	0.00010	0.000111	0.000122
MSE	0.125	0.125	0.120	0.120	0.120	0.120	0.120
Out-of-sample R^2	0.436	0.436	0.454	0.454	0.456	0.454	0.454
BIC	6743.822	6752.41	6520.002	6528.79	6498.80	6545.364	6534.766

This table presents regression results based on 19,189 cross-state investments to pre-SIPA campaigns. Model 2a incorporates the three principal components computed from the development disparity variables, besides the venture and campaign controls. Models 3a and 4a add investor gender and herding behaviour variables, respectively. Personal ties to entrepreneurs are controlled for in Model 5a, while Models 6a–8a further incorporate measures of investor financial literacy, namely investment within the first 3 days of the campaign window, financial literacy groups based on the total number of campaigns and the total amount of money invested on the platform. Continuous variables are winsorised at the 5% and 95% levels, respectively. Investor state, investment weekday, month, and year dummy variables are also included to capture fixed effects. Regression analyses take into account the clustering structure of the data at the investor level. See Appendix A.2 for definitions of variables. *, **, ***, **** denote significance at the 10%, 5%, 1% and 0.1% levels, respectively.

Table OA.2.c replicates the regression analyses of Table OA.2.b for cross-state investments made after the introduction of SIPA. The results of these analyses substantiate the conjecture that crowd investors' investment behaviour has changed substantially with SIPA. For instance, financial literacy – measured by whether the investment occurred within the first three days of the campaign window, investment frequency, or total amount invested on the platform – is significantly negatively associated with investment localisation. Investors who exhibit herding behaviour base their investment decisions on the total number of investors and the total amount of capital accumulated by the venture and hence give less consideration to the location of the venture than those who do not herd. Regardless of the change in the regulatory framework, crowd investors' decision-making is still influenced by disparities in socioeconomic development between the investors' and the investees' states (as shown by significance of the beta coefficients for the three Mahalanobis distances).

A comparison of the results from Tables OA.2.b and OA.2.c reveals that, although crowd funders' investment behaviour has changed significantly since the introduction of SIPA, their investment decisions are still influenced by intangible distance between the investors' and the investees' states.

Table OA.2.c: Local bias of cross-state investments to post-SIPA campaigns

	(2b)	(3b)	(4b)	(5b)	(6b)	(7b)	(8b)
Economic distance	-0.163	-0.161	-0.167	-0.167	-0.167	-0.167	-0.167
Institutional distance	-0.0477	-0.0468	-0.0484	-0.0484	-0.0481	-0.0482	-0.0479
Cultural distance	0.00237	0.00199	0.00126	0.00141	0.00104	0.00157	0.00106
Female		0.00212	0.00377	0.00231	0.00350	0.000724	0.00320
Cum.#Investor				-0.00246	-0.0162	-0.00554	-0.00294
Cum.Amount%target			-0.0739	-0.0735	-0.0791	-0.0722	-0.0720
Investor2Fs				0.0106			
First3days					-0.0226		
InvestorGroup_Frequency							
ϵ [2, 5)						-0.0156	
ϵ [5, 10)						-0.0278	
>=10						-0.0189	
InvestorGroup_Amount							
ϵ [100, 1000)							-0.00726
ϵ [1000, 5000)							-0.0204
>=5000							-0.0127
Venture control var.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Campaign control var.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Weekday, Month, & Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	24,879	24,879	24,879	24,879	24,879	24,879	24,879
alpha	1	1	1	1	0.8	0.9	0.8
lambda	0.0004245	0.0005611	0.0003524	0.0003524	0.0004659	0.0003868	0.0004659
MSE	0.127	0.128	0.127	0.127	0.127	0.127	0.127
Out-of-sample R^2	0.295	0.295	0.298	0.298	0.298	0.298	0.298
BIC	7387.342	7389.003	7360.184	7385.263	7510.217	7524.472	7519.705

Panel C presents regression results based on 24,879 cross-state investments directed to campaigns starting after the SIPA became binding. Model 2b incorporates the three principal components computed from the development disparity variables, besides the venture and campaign controls. Models 3b and 4b add investor gender and herding behaviour variables, respectively. Personal ties to entrepreneurs are controlled for in Model 5b, while Models 6b–8b further incorporate measures of investor financial literacy, namely investment within the first 3 days of the campaign window, financial literacy groups based on the total number of campaigns and the total amount of money invested on the platform. Continuous variables are winsorised at the 5% and 95% levels, respectively. Investor state, investment weekday, month, and year dummy variables are also included to capture fixed effects. Regression analyses take into account the clustering structure of the data at the investor level. See Appendix A.2 for definitions of variables. *, **, ***, **** denote significance at the 10%, 5%, 1% and 0.1% levels, respectively.

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