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Does a Local Bias Exist in Equity Crowdfunding?

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Does a Local Bias Exist in Equity Crowdfunding

Abstract

We use hand-collected data of 20,460 investment decisions and two distinct portals to analyze whether investors in equity crowdfunding direct their investments to local firms. In line with agency theory, the results suggest that investors exhibit a local bias, even when we control for family and friends. In addition to the regular crowd, our sample includes angel-like investors, who invest considerable amounts and exhibit a larger local bias. Well-diversified investors are less likely to suffer from this behavioral anomaly. The data further show that portal design is important for attracting investors more prone to having a local bias. Overall, we find that investors who direct their investments to local firms more often pick start-ups that run into insolvency or are dissolved, which indicates that local investments in equity crowdfunding constitute a behavioral anomaly rather than a rational preference. Here again, however, portal design plays a crucial role.

JEL-Codes: G110, G240, K220, M130.

Keywords: equity crowdfunding, crowdfinancing, local bias, individual investor behavior, entrepreneurial finance.

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1. Introduction

In this study, we analyze whether investments brokered by equity crowdfunding platforms exhibit a local bias and whether specific investor groups can explain this bias. *Equity crowdfunding* refers to a source of finance that occurs on the Internet and, in the last decade, has emerged in many European countries (Hornuf & Schwienbacher, 2018a), mostly because existing securities regulation has been benevolent toward issuers of small offerings or suffered from loopholes in its prospectus requirements (Hornuf & Schwienbacher, 2017). As the financial instruments used by equity crowdfunding issuers vary from one jurisdiction to another, equity crowdfunding¹ can also be referred to as *investment-based crowdfunding*,² *securities-based crowdfunding*,³ or *crowdinvesting*.⁴ In this paper, we refer to the new asset class as equity crowdfunding, as this is the term most frequently appearing in the literature.

Equity crowdfunding by non-accredited investors was prohibited in the United States for a long time. This situation was due to delays caused by the Securities and Exchange Commission in implementing Title III of the Jumpstart Our Business Startups (JOBS) Act. The delayed implementation of the equity crowdfunding rules partly stemmed from the lack of a full understanding of the new activity. However, equity crowdfunding activities in various European countries constitute natural experiments, which might inform national securities regulators around the world about how equity crowdfunding takes place in reality. Moreover, the European Commission has announced the launch of a Capital Markets Union Action Plan on a supranational level, which among other things aims to diversify the funding sources of firms and make the securities prospectus more affordable for small and medium-sized firms.⁵ As legislators are still struggling to balance the need to close the funding gaps of these firms with effective investor protection, a better understanding of how equity crowdfunding actually works is urgently required.

Most research investigating Internet-based finance has examined the determinants of funding success in donation- or reward-based crowdfunding as well as peer-to-peer lending. The

¹ See, for example, the JOBS Act, including the term “crowdfunding,” which refers to transactions involving the sale of a security. Ahlers, Cumming, Guenther, and Schweizer (2015, p. 958) define “equity crowdfunding” as an investment model in which investors receive “some form of equity or equity-like arrangements.”

² See the FCA Consultation Paper CP13/13 titled “The FCA’s regulatory approach to crowdfunding (and similar activities)” as well as the European Securities and Markets Authority “Opinion investment-based crowdfunding.”

³ See Knight, Leo, and Ohmer (2012) and the U.S. Securities and Exchange Commission, 17 CFR Parts 200, 227, 232 et al. Crowdfunding; Proposed Rule.

⁴ This term is probably the most useful, as it encompasses all financial instruments found in practice, regardless of whether they are classified as securities or investments or lack a legal definition altogether.

⁵ Introductory remarks by Commissioner Jonathan Hill at the launch of the Capital Markets Union Action Plan, Brussels, 30 September 2015.

behavior of individuals engaging in these activities is, however, likely to differ from equity crowdfunding. In regular crowdfunding, individuals make consumption or philanthropic decisions and are concerned with the enactment of a charitable campaign or the delivery of a consumer product, while in equity crowdfunding, investors care about the future cash flows of a firm. In peer-to-peer lending, the future cash flows of an individual or firm are predefined by the loan agreement. Moreover, in case of insolvency, lenders are generally preferred to equity or subordinated debt holders and therefore take less risk. Finally, in contrast with equity crowdfunding, peer-to-peer lenders do not participate in changes in the valuation of the firm, as they do not hold an equity or equity-like stake replicating the upside potential of the firm.

A well-known phenomenon in financial markets is the tendency to invest in securities that are geographically close (*local bias*). As investors who exhibit a tendency to invest local do not build optimally diversified portfolios (Markowitz, 1952), their behavior could lead to economic inefficiencies, and therefore this phenomenon has received considerable attention in the finance literature. Conversely, agency theory (Aghion & Bolton, 1992) stipulates that investors could also rationally invest in more local firms that fail less often if geographic proximity allows them to obtain private information about the firm or puts them in a better position to exercise their control rights.

Previous research suggests that U.S. investment managers prefer firms with local headquarters (Coval & Moskowitz, 1999), suggesting that information asymmetries between local and nonlocal investors explain the regional proximity in investments. Ivković and Weisbenner (2005) confirm this hypothesis for individual investors and provide evidence that these investors exploit local knowledge to earn excess returns. Using data from German individual investors, Baltzer, Stolper, and Walter (2013) show that the local bias extends beyond national borders, with investors living closer to a foreign country investing more in firms located in a regionally close foreign country. Baik, Kang, and Kim (2010) find that local investment advisers, high local ownership institutions, and high local turnover institutions forecast returns better than nonlocal institutional investors and that the local advantage is even stronger for firms exhibiting greater information asymmetries.

In the realm of venture capital, Mäkelä and Maula (2008) examine the role of local and cross-border venture capital investments and find that local venture capitalists invest first while foreign venture capitalists typically invest in later rounds. The effect is mitigated if the start-up team is highly experienced or has no interest in the domestic market. Lutz, Bender, Achleitner, and Kaserer (2013) analyze the relevance of spatial proximity of investments between start-ups and venture capitalists in Germany. They provide evidence that spatial proximity has an impact

on the likelihood of an investment for (1) very small and very large investments and (2) less experienced venture capitalists. Cumming and Dai (2010) find that venture capital funds exhibit a significant local bias, with half the investments located within a 233-mile radius. The local bias was smaller for reputable venture capital funds having a larger syndication network, which alleviates information asymmetries.

In their article, Agrawal, Catalini, and Goldfarb (2015) investigate the role of geographic proximity in a prepurchase crowdfunding platform. They find that investment patterns over time are related to geographic distance, with local investors engaging much earlier. However, this pattern disappeared when the researchers controlled for family and friend investors. Günther, Johan, and Schweizer (2018) present first evidence on how sensitive different investor types are to geographic distance in an equity crowdfunding context. However, they do not calculate a local bias, and their analysis relies on data from the Australian Small Scale Offerings Board, in which average investments are rather large and contributors are few. Lin and Viswanathan (2015) provide evidence of a home bias in peer-to-peer lending and suggest that this finding is partly due to behavioral reasons. In peer-to-peer lending, borrowers are often anonymous to lenders, and information gathering is restricted to the information provided on the platform. This differs in equity crowdfunding in which investors know who the target firms are and thus can collect further information at their discretion. The additional effort of collecting information might then allow investors to learn about the quality of the firms seeking funding.

In their recent study, Niemand, Angerer, Thies, Kraus, and Hebenstreit (2018) run a choice-based conjoint experiment analyzing factors contributing to a home bias in equity crowdfunding. They find that investors in central Europe avoid foreign currencies and decide against national legislation in favor for EU legislation. Using a mixed-methods approach and data from Crowdcube, Kleinert and Volkmann (2019) find that crowd investors are concerned about information asymmetries and agency risks. They also provide evidence that dialogues on discussion boards on equity crowdfunding platforms generally drive investments. Nitani, Riding, and He (2019) evidence that to reduce risk, investors in equity crowdfunding often chose larger firms, which are managed by more experienced and educated managers. Wallmeroth (2019) uses a large sample of more than 42,200 investments from Germany's largest equity crowdfunding portals and finds that investment amounts differ significantly and that the crowd is not a homogeneous community. Finally, Nguyen, Cox, and Rich (2019) show that investors in equity crowdfunding delay their investments to gain more information.

In this study, we investigate whether a local bias exists in a new and fast-growing asset class, examine what its determinants are, and clarify whether a local bias has positive or negative

consequences for investors. Because regulators have consistently regulated investors in equity crowdfunding depending on their net worth and income, we analyze whether specific investor groups are more or less prone to engage in geographically close investments. Less wealthy investors have legally been restricted in the amount they can invest in equity crowdfunding campaigns (Bradford, 2012; Hornuf & Schwienbacher, 2017), so we are particularly interested in the local bias of different investor groups. If investors who provide only small amounts, for example, exhibit a different local bias and fail with their investments systematically more often, this might inform regulators about the effectiveness of regulations such as the JOBS Act that limit the amount that can be sold to a single investor. In line with previous literature and the actual observations in our data, we consider three groups of investors: (1) family and friends, (2) angel-like investors, and (3) more experienced investors.

Our results reveal that a local bias exists for individual investments and investment portfolios. We further show that both family and friend and angel-like investors exhibit a larger local bias. Investors who have a better-diversified equity crowdfunding portfolio show a smaller local bias. This finding is in line with agency theory and the conjecture that both family and friend and angel-like investors are in a relatively better position to use their local knowledge to resolve information asymmetries, while diversified investors apparently spread their portfolio without considering the geographic location of the investments. We also provide evidence that investments over the weekend by presumably less professional investors exhibit a smaller local bias. The data further show that portal design is important for attracting investors more prone to having a local bias.

Moreover, we find that firms with a higher valuation exhibit a larger local bias, which indicates that investors might benefit from screening firms locally that request a higher price per share. Furthermore, investments in industries such as manufacturing, trading, IT, technical activities, and other service activities exhibit a significant, negative local bias, indicating that these activities can be easily understood from farther away through manuals and technical descriptions. Finally, we find that investors who direct their investments to local firms more often pick start-ups that run into insolvency or are later dissolved. However, more professional investors on platforms with large minimum investments tend to invest in local firms that are more successful.

The remainder of the paper proceeds as follows: in section 2, we describe the German equity crowdfunding market and define the investor types we examine herein. Then, we describe the relevant theory and testable hypotheses in section 3. Section 4 presents the data and

methodology. Section 5 outlines the empirical results and presents robustness checks. Section 6 concludes.

2. Equity Crowdfunding

2.1. Defining Equity Crowdfunding

Crowdfunding was initially developed for philanthropic projects, which are often referred to as the donation model of crowdfunding. In this model, backers donate money to support a project without expecting compensation, potentially leading to the transformation of social capital into economic capital (Lehner, 2014). This differs from the reward-based model of crowdfunding in which backers are promised perks, such as supporter T-shirts or having their name posted on the campaign website. At times, the reward-based crowdfunding model may resemble a prepurchase, such as when backers finance a product or service they wish to consume and which is still to be developed by the entrepreneur. Popular examples are video games such as *Star Citizen* or the Pebble smartwatch. Another form of Internet finance is peer-to-peer lending, in which funders receive a predetermined periodic interest payment and—if the individual or firm does not go bankrupt—obtain their original principal investment back by the end of the investment period.

Equity crowdfunding is a subcategory of crowdfunding in which backers expect financial compensation in the form of a profit-share arrangement. To encourage the crowd to participate in the future profits of the firm, fundraisers in some jurisdictions offer equity shares in a private limited liability company (LLC). In the United Kingdom, for example, this is the case on the portals Crowdcube and Seedrs. In Germany, start-ups do not offer common shares in an LLC, as transferring them to another investor would require the involvement of a costly notary (Braun, Eidenmüller, Engert, & Hornuf, 2013). Typically, German start-ups running an equity crowdfunding campaign use mezzanine financial instruments, such as nonsecuritized participation rights, silent partnerships, and subordinated profit participating loans.

Before an equity crowdfunding campaign goes online, the start-up and the portal must agree on a valuation of the firm, and the founders must decide how much capital they want to raise. Consistent with the valuation and capital needs of the firm, the portal provides a standardized financial contract, which replicates an equity share in the firm, so that the crowd can participate in the future cash flows of the start-up. These financial instruments are senior to ordinary shares and shareholder loans but rank after all ordinary liabilities. Moreover, they cannot be sold on a secondary market and often have a lifespan of three to seven years. In most cases, investors

hold the right to receive a *pro-rata* payment of the firm's profits but without any of the rights attached to an equity share, such as control and voting rights. Although investors do not participate in the losses of the firm beyond their investments, there is a high risk that the start-up will fail and backers will not receive any financial return from the securities bought. Moreover, in many cases backers might even lose their original principal investment.

2.2. Equity Crowdfunding Portals in Germany

By April 1, 2018, 56 equity crowdfunding portals were established on the German market, 24 of which were still running an active business (Hainz, Hornuf, Nagel, Reiter, & Stenzhorn, 2019). During the observation period of our study, the two portals we consider here made up 26% of the entire German equity crowdfunding market in terms of capital raised and 40% when considering the number of start-ups that received funding. Equity crowdfunding portals in Germany largely follow the business model outlined in section 2.1. While the web design and investment process of the two portals we consider are rather similar, some features of the portals exhibit some peculiarities. These differences may affect the type of investors attracted and consequently the local bias of the crowd.

First, after the portal Seedmatch appeared on the stage, Innovestment was the second portal entering the German equity crowdfunding market in late 2011. Companisto began operating a year later but quickly established a larger user base than Innovestment (Dorfleitner, Hornuf, Schmitt, & Weber, 2017). Until the end of our observation period, Companisto successfully funded all 30 campaigns, while Innovestment enabled only 28 firms to obtain funding. Another 16 campaigns on Innovestment were not successfully funded. The slightly larger number of start-ups available over a shorter period allowed investors to diversify their portfolios better on Companisto. This tendency even accelerated because the minimum investment on Companisto ranged from only 4 to 5 EUR versus from 500 to 25,000 EUR in the case of Innovestment. The larger the minimum investment, the more difficult it becomes for investors to diversify their portfolio with a given amount of capital, and presumably the more important it is to obtain information about the prospects of the firm.

Second, most often investors make a direct investment in the start-up in which they want to participate. This holds true for the financial contracts of Innovestment and all other German equity crowdfunding portals, but not for Companisto. Companisto initially set up a special purpose vehicle (SPV) to pool the investments made in all campaigns that were successfully funded on the portal. The SPV, in turn, invested the capital raised from the crowd in the start-up in which the investors wanted to participate. Today, Companisto no longer pools investments

through an SPV but offers a separate pooling contract for each campaign. After crowdfunding has taken place, the pooled investments help venture capital firms negotiate with a single counter-party and make buying out the crowd easier.

Third, under the all-or-nothing model, founders set a funding goal and keep nothing unless this goal is achieved (Cumming, Leboeuf, & Schwienbacher, 2019b). All German equity crowdfunding portals run under this all-or-nothing model. Moreover, they all allow the crowd to oversubscribe the issue up to a maximum funding limit. In the past, the funding goal was frequently set at 50,000 EUR. If the 50,000 EUR cannot be raised within a prespecified period, the capital pledged is given back to the investors. Moreover, most German equity crowdfunding portals operating an all-or-nothing model, including Companisto, allocate shares on a first-come, first-served basis. Under this model, founders set an overall funding limit and stop selling investment tickets to the crowd when the limit is reached. In the early years, the funding limit was often set at 100,000 EUR. After this threshold was reached, the funding process stopped before the prespecified funding period came to an end and shares were no longer sold to the crowd.

Innovestment—which became insolvent in 2017—deviated from this model by implementing a multiunit second-price auction in which individual bids were sealed. The auction had three stages and was similar to a Vickrey (1961) auction, except that the portal revealed the applicable second price to everyone. After the start of the auction, investors could make pledges by specifying the number of tickets they wanted to buy and the price they were willing to pay for each ticket. In line with the other platforms, the portal and the start-up determined a lower threshold for the price of a single ticket. During the first phase of the auction, everyone who pledged money was allotted the desired number of tickets, and the lowest posted price applied to everyone. Thus, there was no reason per se for investors to outbid the lower threshold in this phase, unless they wanted to avoid the transaction cost of bidding again later.⁶ In the second phase, the number of tickets was kept constant, and investors could outbid each other by posting even higher prices. Importantly, the second phase was not restricted to investors from the first phase; everyone who was registered on the portal could still join the bidding process. The second phase continued until the maximum funding limit was reached. For most campaigns on Innovestment, the maximum funding limit was 100,000 EUR. In the third and last phase, investors could still outbid each other. At this point, however, it was no longer possible to increase the overall sum of funds. Still, higher bids therefore resulted in the overall number of

⁶ The chief executive officer of Innovestment made this argument when she was asked why investors overbid the lower price threshold in the first phase of the auction.

tickets being reduced, thus lowering the number of investment tickets a start-up must have sold for a given amount of capital (for a detailed description and analysis of the Innovestment auction mechanism, see Hornuf & Neuenkirch, 2017). In line with Campbell (2006), we presume that less sophisticated investors know their limitations and avoid complex equity crowdfunding portals for which they feel unqualified. The Innovestment auction might thus have implications for the local bias, in the sense that only a financially more sophisticated crowd might have engaged in a second-price auction.

2.3. *Investor Types*

To derive policy implications, we differentiate among three investor groups that engage in equity crowdfunding next to the regular crowd: (1) family and friends, (2) angel-like investors, and (3) more experienced investors. These groups were defined by previous literature and the actual observations in our sample. We investigate them separately because they differ in their capability of evaluating firms' future potential, which could ultimately result in a different local bias.

First, according to the entrepreneurial finance literature (e.g., Agrawal et al., 2015), family and friends are an important source of capital for early-stage ventures. According to Parker (2009), 31% of the funds for start-ups that were founded less than three years ago came from family and friends. Informal investments based on a close relationship with a founder are often referred to as *love money* (Macintosh, 1994; Mason, 2006). Family and friend investors have been traditional sources of love money. Equity capital for small- and medium-sized companies is often thought to entail a significant proportion of love money (Berger & Udell, 1998; Harrison, Mason, & Girling, 2004; Riding, 2008). Love money investors investing in close family businesses often do not have ownership experience (so-called classic love money; see Szerb, Terjesen, & Rappai, 2007). However, family and friend investors may identify the worthiness of an investment more easily because of their close social ties and the resulting information advantages when evaluating the quality of a founder (Cumming & Johan, 2009). In line with this conjecture, Agrawal et al. (2015) find that family and friend investors are less responsive to the information posted by founders, because they directly know the entrepreneur. Following their approach, we define investors as family and friends if (1) they invest in the focal start-up before investing in any other start-up (the investor likely joined the portal for the focal start-up), (2) their investment in the focal start-up is their largest investment, and (3) they invest in no more than three other start-ups (the focal start-up remains the key reason for being on the portal). Family and friends could drive a potential local bias in equity crowdfunding because

they often have an offline social relationship with the founder (Agrawal et al., 2015) and social networks are largely local in nature (Hampton & Wellman, 2002).

Second, we observe another group of investors in our data set, referred to as angel-like investors, that invests higher amounts and for which the gathering of additional information might be worthwhile (Aghion & Bolton, 1992). Although we cannot confirm whether these investors actively engage in the start-up, investing higher amounts at least provides them with stronger incentives to do so. Wang, Mahmood, Sismeiro, and Vulkan (2019) find that in an equity crowdfunding context, angel investors invest first and crowd investors fill funding gaps when ventures are large. Goldfarb, Hoberg, Kirsch, and Triantis (2013) find that 60% of U.S. business angels are located within three hours' driving time from the firms they invested in, and 18% are located within the same zip code region. Harrison, Mason, and Robson (2010) examine the distance of business angel investments in the United Kingdom and find that local investments take place in technology-oriented start-ups and that distance of investments increases with higher investment amounts. Business angels often conduct due diligence and monitor the progress of the firm, which can provide an important signal and encourage regular crowd investors to invest as well (Hornuf & Schwienbacher, 2018b). Agrawal, Catalini, and Goldfarb (2014) find that syndicated business angels are the main drivers of successful deals on Angel List, one of the leading U.S. equity crowdfunding portals for accredited investors. In their data set, business angels invest a median amount of 2,500 USD. We consider business angels in Germany somewhat more sophisticated⁷ and label investors as angel-like investors if they invest at least 5,000 EUR.

Third, we account for the investment experience of crowd investors. We consider investors to be more experienced in the domain of equity crowdfunding if they have made more pledges on a particular portal, which indicates that at least their equity crowdfunding portfolio is more diversified. Investors who hold a diversified equity crowdfunding portfolio are more likely to invest in various firms at varying distances, because actively monitoring portfolio firms in a more diversified portfolio involves high transaction costs, which makes it practically impossible to engage in on-site monitoring of the firms. This reasoning is in line with the findings of Goetzmann and Kumar (2008) who evidence that, in general, equity portfolio diversification correlates with a lower local bias. Moreover, Abreu and Mendes (2010) show that a diversified portfolio is a good proxy for investor education, which again leads to a lower local bias (Kimball & Shumway, 2010).

⁷ Fryges, Gottschalk, Licht, and Müller (2007) report that German business angels that engage in high-tech start-ups typically invest 30,000 EUR.

3. The German Venture Capital Market, Theory, and Hypotheses

3.1. *Venture Capital in Germany*

Before we derive our hypotheses, we provide a brief overview of the German venture capital landscape to contextualize the equity crowdfunding market. As in many other countries, significant funding for German start-ups comes from venture capital investments. The entrepreneurial finance literature suggests that venture capital investments emerge because of similarities between the investor and the founder with regard to networks, educational and professional background, and social traits, but also result from the geographic proximity between the investor and the start-up (Rider, 2012; Shane & Stuart, 2002; Sorenson, Assenova, Li, Boada, & Fleming, 2016; Zacharakis & Meyer, 1998). To investigate similarities and differences between the geographic location of German venture capital and equity crowdfunding investments, we begin our analysis by investigating from where venture capital in Germany generally originates.

We analyze a sample of 1,221 venture capital investments, 538 German target firms, and 235 national and international venture capital funds that we retrieved from the Thomson Reuters Private Equity database. We then compare the location of venture capital investments with equity crowdfunding investments in Germany. The venture capital sample contains only the venture capital investments that match the industries and funding period of the equity crowdfunding start-ups. Table 1 shows the most relevant cities where venture capital funds, equity crowdfunding investors, and target firms are located. We find that the majority of venture capital investments in Germany take place in Berlin and Munich, followed by Hamburg and Cologne. Venture capital funds are often located in Berlin and Munich as well, but also have their offices based in Bonn, Frankfurt, Paris, and London. For the remaining regions, we map the location of venture capital funds (green areas) and firms in which venture capitalists have invested (green dots) in Figure W1 of the Web Appendix.

– Table 1 around here –

Similar to venture capital, equity crowdfunding also predominantly takes place in Berlin, most likely because the leading platform—Companisto—is located there. Next to Berlin, target firms are mostly located in Hamburg, Düsseldorf, Munich, and much smaller cities (e.g., Neuenhagen, Velten, St. Augustin). This pattern is in line with the findings of Sorenson et al. (2016), who compare crowdfunding investments from the portal Kickstarter with venture capital investments in the United States and find that crowdfunding accelerates venture capital in regions that have previously been excluded from entrepreneurial finance. At the top of the

list, equity crowdfunding investors are located in the same cities as venture capitalists: Berlin and Munich. However, the cities further down the list are different. Furthermore, Figures W2 and W3 of the Web Appendix show that equity crowdfunding attracts foreign investors from cities such as Vienna as well.

3.2. Theoretical Considerations and Hypotheses

The theoretical literature is not clear per se on whether a local bias constitutes a *behavioral anomaly* or whether investing locally is a *rational preference* in line with, for example, transaction cost theory (Coase, 1960; Zey, 2001) and agency theory (Aghion & Bolton, 1992; Grossman & Hart, 1983). According to Markowitz (1952), investors maximize their expected returns by maintaining a well-diversified portfolio. One important aspect of diversification is the regional dispersion of investments. The irrational overweighting of local securities can expose investors to clustered risks, which in turn can decrease expected returns. As in any other market, the gains from more dispersed equity crowdfunding investments depend on the correlation of returns in different regional markets. If the equity crowdfunding markets in different regions are not perfectly correlated, a risk reduction is available from dispersed holdings. For the traditional stock market, French and Poterba (1991) show that in some cases, British investors must expect annual returns from their local investments of more than 500 basis points above those in the U.S. market to rationally explain the extent of their local equity holdings.

By contrast, information on equity markets is vital but distributed unequally between the parties of a contract. The founders who search for capital and manage a firm usually have better information about the venture than those who provide the funding (Jensen & Meckling, 1976). As a result, investors must incur significant costs to learn about the prospects of an investment. These costs involve finding a suitable investment target and assessing its prospects (*search costs*), contracting the terms of the investment (*transaction costs*), and, finally, monitoring the outcome of the funded project (*control costs*). Agency theory (Aghion & Bolton, 1992; Grossman & Hart, 1983) suggests that active investors who can exercise control over a firm have a positive impact on the entrepreneur's incentives, which leads to preferable corporate outcomes. Searching high-quality ventures, transacting with them, and monitoring them are easier and cheaper if the costs of these activities to investors are low. To reduce these costs, venture capitalists tend to invest in local firms (Cumming & Dai, 2010) because screening, contracting, and controlling a local firm is usually easier and cheaper. Given that equity crowdfunding, versus venture capital financing, takes place on the Internet, the question arises

whether equity crowdfunding lowers search, transaction, and control costs for everyone, making physically close investments practically unnecessary. We therefore need to investigate whether the institutional setting of equity crowdfunding as a new asset class can sufficiently solve the agency problem between investors and founders raising funds.

First, the availability of information on Internet portals reduces the search costs of investors significantly. While traditionally venture capitalists relied on investor networks, such as Silicon Valley or Route 128, today crowd investors can almost costlessly identify new investment opportunities via the Internet. Equity crowdfunding portals provide information on the founder team, business model, and financials. Moreover, interested investors can directly communicate with the founder team through the equity crowdfunding portal. However, the information provided by the founders might be cheap talk (Cumming, Hornuf, Karami, & Schweizer, 2019a), and information asymmetries, as defined by Jensen and Meckling (1976), most likely remain.

Assuming that equity crowdfunding portals are repeat players that serve a two-sided market of firms seeking capital and investors looking for a return, we would expect these platforms to maximize their profits by raising the overall deal flow (Rochet & Tirole, 2003). Portals can only achieve this goal by attracting not only solvent investors but also profitable firms. In the equity crowdfunding market, portals are still nascent and might not be able to demonstrate that they will act as repeat players that will serve the market in the long run. Yet firms themselves might be able to credibly signal their quality (Spence, 1973). However, most firms that participate in equity crowdfunding campaigns are start-ups with little validated information such as audited financial statements and therefore have limited capacity to signal their quality. Moreover, a large and diversified crowd might easily be in a position to screen the venture, because the likelihood that one crowd investor coincidentally lives close to the firm is greater than that of a single professional investor being located in one particular region. Nevertheless, when making an investment of as little as 5 EUR, it is hardly worthwhile for an individual investor to engage locally in complex information validation and make the effort to communicate lemon market firms (Akerlof, 1970) to the larger crowd. Furthermore, the collection and publication of information in equity crowdfunding markets constitutes a public good, which makes investors prone to free ride on its provision. Therefore, it is not likely that equity crowdfunding can reduce the search costs related to an investment.

Second, a standardized investment process lowers transaction costs. Equity crowdfunding portals allow firms and investors to use a ready-made platform and a standardized legal process. They also save the contracting parties time and money by providing boilerplate financial

contracts. This standardized investment process allows distant investors to invest under similar conditions to local investors, mostly by eliminating the costly process of on-site negotiations with the founder. As a result, distant investors using equity crowdfunding portals should have a cost advantage over venture capital firms that need to engage in a local bargaining process. The downside of eliminating tailor-made contracts, however, is that crowd investors cannot specify particular covenants or stage their investments. As a result, equity crowd investors remain largely passive (Hornuf, Schilling, & Schwienbacher, 2019).

Third, monitoring is difficult in equity crowdfunding because investors rarely interact directly with the founder team and must rely on information provided by the firm. Information delivered by e-mail or investor relation channels on an equity crowdfunding portal is less reliable than audited financial statements or getting firsthand information from an insider who serves on the board of directors of the firm. Research on reward-based crowdfunding has shown that creators use fake social information by purchasing Facebook likes or personal friends to attract more backers (Wessel, Thies, & Benlian, 2015). Cumming et al. (2019a) show that in some cases, founders might also engage in outright fraud, by promising backers a product but spending the money on personal expenses.

Moreover, venture capitalists traditionally write tailor-made contracts that include different types of covenants, which serve as an early warning system and control mechanism (Bergloff, 1994; Black & Gilson, 1998; Gompers & Lerner, 1996; Lerner, 1995). Because venture capitalists are in close contact with the firm (often they are represented on the board [Camp, 2002]), they can readily monitor compliance with covenants and punish breaches by the founder. A related mechanism is staged finance, which ensures that venture capital funds stop financing a firm if certain performance targets are not reached (Tian, 2011). In equity crowdfunding, all these mechanisms are largely absent, due to the boilerplate nature of the contracts, making it more expensive for crowd investors to resolve the agency and control problem with the firm. In summary, by enabling start-up finance via the Internet, equity crowdfunding does not solve the agency problem between investors and the entrepreneur. Local investments by more sophisticated investors might therefore be a means to lower the transaction costs of screening and monitoring a venture.

Per its definition, in crowdfunding, the regular crowd often holds only a small stake in a firm and might rationally rather write off an investment than engage in costly monitoring activities. In comparison with the regular crowd, angel-like investors tend to invest higher amounts and therefore are more likely to bear the transaction costs of conducting, for example, due diligence. Living close to the firm reduces the transaction costs of screening and monitoring a business

(Chen, Gompers, Kovner, & Lerner, 2010; Cumming & Dai, 2010). We therefore hypothesize the following:

Hypothesis 1: In equity crowdfunding, angel-like investors, who make high investments, exhibit a larger local bias.

Furthermore, in equity crowdfunding, the size of the local bias could be explained by an offline social relationship between the founder and the investors. In particular, family and friend investors may solve agency problems more easily and exhibit distinct investment patterns, because they (1) have direct information about the founder and (2) are more likely to live closer to the respective firm. Moreover, *love money* can display informational advantages regarding the quality of the entrepreneurs (Cumming & Johan, 2009). Analyzing crowdfunding campaigns by artists on the portal Sellaband, Agrawal et al. (2015) provide evidence that family and friends largely explain the existing local bias. In line with their results, we hypothesize the following:

Hypothesis 2: In equity crowdfunding, the local bias is larger for investors with personal ties to the entrepreneur (i.e., family and friends).

As noted previously, passive investors maximize their expected returns by maintaining a well-diversified portfolio (Markowitz, 1952). Passive investors would per definition not try solving the agency problem by monitoring and exercising control over the firms in their portfolio. Regional dispersion then becomes an important aspect for portfolio diversification (French & Poterba, 1991). The overweighting of local securities can expose investors to clustered risks, which in turn might decrease expected returns. Crowd-lending portals such as Lending Club, Prosper, and Funding Circle offer automated tools that allow the investor to pledge predefined amounts in each campaign independent of the geographic location of the respective target.⁸ We hypothesize that investors who maintain a well-diversified portfolio on the equity crowdfunding portal and are more experienced in this domain will also geographically diversify their equity crowdfunding investments more thoroughly, to maximize their expected returns (Abreu & Mendes, 2010; Goetzmann & Kumar, 2008).

Hypothesis 3: In equity crowdfunding, the local bias is smaller for more experienced investors.

⁸ See also LendingRobot (<https://www.lendingrobot.com/>), which automatically invests in Lending Club, Prosper, and Funding Circle.

If the local bias constitutes a behavioral anomaly detrimental to investors, it should be less pronounced if investors are led by emotions and feelings unrelated to geographic location. On most European equity crowdfunding portals, investors can see previous investments by other investors, the amount their peers have pledged, and sometimes where other investors are located. Such a portal design allows for information cascades and can trigger herding behavior among the crowd, where investment decisions are based solely on the behavior of others (Hornuf & Schwienbacher, 2018b; Vismara, 2018). Thus, investors might no longer care about the location of the investment, as they are under the influence of other behavioral factors. Moreover, they should no longer engage in a careful screening process or consider the potential advantage of local investments in terms of agency theory when engaging in herding behavior. Thus, herding should make the geographic distance of an investment less relevant.

Moreover, the time of day has important implications for investors' biases (Coval & Shumway, 2005). Timing also matters in crowdfunding campaigns, with most investments in reward-based crowdfunding taking place on weekends (Mollick, 2014). We expect the investors who invest on the weekend to be less professional, as they probably consider these investments a free-time activity. Less professional investors are also less likely to solve the agency problem and use local knowledge or engage in extensive on-site screening. To this end, we would anticipate weekend investments to show no local bias. We can also transfer this conjecture to the timing of investments during the day. We expect that professional investors are active during the workday, while less sophisticated investors invest as a free-time activity during the evening or at night.

Hypothesis 4: In equity crowdfunding, herding behavior, weekend, and late-night investments reduce the local bias.

Finally, local investment must not be irrational per se or constitute a behavioral anomaly if investors who engage in a local firm are able to resolve the agency problem and verify the quality of the ventures better. While this is most likely true for professional investors, the regular crowd is less likely to engage in such screening and monitoring activities, given that they hold only a small share in the firm. By contrast, local investments can be considered a behavioral anomaly if they have a tendency to be written off more frequently. In this case, local investors would not be able to identify high-quality ventures better because of their local proximity and knowledge. In a final step, we therefore investigate whether equity crowdfunding investors who direct their investments to local firms are more or less likely to invest in firms that ultimately fail.

***Hypothesis 5:** In equity crowdfunding, local investments of the regular crowd constitute a bias and are more likely to fail. Professional crowd investors are more likely to resolve agency problems through local investments.*

4. Data and Method

4.1. Data

For the period from November 6, 2011, to August 28, 2014, we collected data on 21,416 individual investment decisions from two German equity crowdfunding portals, Companisto and Innvestment. We were able to obtain data on all the 74 campaigns run on the two portals during the observation period. For Companisto, we hand-collected data on 30 campaigns, while Innvestment provided data on 44 campaigns. Information on the location of the firms running the equity crowdfunding campaigns came from the German company register (*Bundesanzeiger Verlag*). To identify the investor location, Innvestment provided zip codes of investors' place of residence. Companisto allows investors to post their current location when making an investment; because providing the location is not compulsory, investors had no incentive to misrepresent their place of living. We needed to exclude 956 individual investments from the analysis because no location was provided or the location could not be uniquely identified, which left us with 20,460 investment decisions. On Companisto, 65.6% of the investments disclosed a city name, and 34.4% revealed either the country or federal state (*Bundesland*). We assigned investors who only indicated the state to the city with the largest population in the respective state (Tables W1–W4 in the Web Appendix report the results restricting the sample to investors providing their exact location [Companisto] and those from the portal that directly provided the location of the investors to us [Innvestment]).⁹

Panel A of Table 2 provides an overview of the data we use in our empirical analyses, and Panel B shows the mean investment amounts by different distance categories for each of the two portals. Variables reported are defined in Appendix A. The table reveals that investors living within a range of less than 100 km from the firms invest higher amounts on average than investors living within a range of 100 km to 300 km from the firms (Innvestment: $p = 0.057$; Companisto: $p = 0.065$). However, while regionally close investors invest the overall highest amounts on Innvestment, the largest amounts come from distant investors living more than 700 km away for Companisto campaigns. In the context of U.S. venture capital investments (Cumming & Dai, 2010), the mean distance between the venture capitalist's headquarters and

⁹ We assigned foreign investors who only indicated the country to the city with the largest population in the respective country.

the headquarters of new ventures is 783 miles (around 1,260 kilometers). In our sample, the average distance is 371 kilometers. Panel C of Table 2 reports the descriptive statistics for the dependent and explanatory variables, and Panel D shows the descriptive statistics separately for Companisto and Innovestment campaigns. To learn more about the investment experience of the investor, we also obtained survey data from Innovestment about the past experience of the investor in various investment segments outside the equity crowdfunding market.

– Table 2 around here –

4.2. Method

4.2.1. Individual investments. To measure the local bias, we first derive the distance between investors and firms following Vincenty (1975), who calculates the distance between two points on the surface of a spheroid. The location points of investors and firms are specified by longitude and latitude. We then measure the local bias following Coval and Moskowitz (1999). To analyze the effect of firm and campaign-specific characteristics, we calculate the local bias for individual investment decisions rather than investment portfolios.

To determine whether a crowd investor skews investments toward more local or more distant firms, we must define the distance of a relative benchmark portfolio available on the respective portal. Because portals inform investors about their upcoming campaigns on the portal websites or in investor newsletters, we consider not only investment opportunities at the time of the investment decision for this benchmark portfolio but also campaigns that are upcoming in a couple of days or weeks. Moreover, because of these early campaign announcements, investors could have decided to invest in the focal firm even before the respective firm accepts investments, and the geographic proximity of previous investment opportunities might also have influenced the investment decision. Assuming that engagements in start-up firms are usually not made in an ad hoc manner and only a few equity crowdfunding campaigns are run in parallel on a given day, we consider for our benchmark portfolio a time frame of four weeks before and after the actual investment decision is made.

Suppose investors i can invest in N different firms on an equity crowdfunding portal. Under the assumption that the investor could potentially have invested in all available firms on a given equity crowdfunding platform during the stated time frame, we define the investment weight for each available firm as $\frac{1}{N}$. Let d_{ij} denote the distance between investor i and firms j ; then, we

can define the mean distance of the equally weighted benchmark portfolio on the respective platform for investment i as

$$(1) \quad d_{iM} = \frac{1}{N} \sum_{j=1}^N d_{ij}.$$

The local bias of investor i investing in firm j is

$$(2) \quad LocalBias_{ij} = \frac{d_{iM} - d_{ij}}{d_{iM}}.$$

The local bias therefore runs from minus infinity to plus one. A local bias of zero indicates that the investor invested in a firm that is of a comparable distance to the neutral benchmark portfolio. We interpret a positive local bias as a tendency to invest in local firms; a negative local bias indicates that investors prefer firms that are farther away.

4.2.2. Investor portfolios. In a second step, we analyze the local bias for the portfolio of each investor on a given equity crowdfunding portal. This enables us to evaluate the aggregate investment decisions of crowd investors. For Innovestment, we identify investors from a unique user ID the portal provided to us. For Companisto, we assume that the name and location combination as indicated by the investor provides a good proxy to identify a unique investor. However, because we cannot entirely rule out that there are two users investing on the portal with a popular name such as “Michael,” who both live in a large city such as Munich, we report all results excluding investments by users with the 20 most popular German names¹⁰ in Tables W5–W8 in the Web Appendix. Moreover, because we do not expect two investors from one region using the same name to systematically exhibit opposing local biases that cancel each other out, nothing is lost by combining these two investors into a single portfolio.

Following Seasholes and Zhu (2010), we adjust the distance of the investor portfolio for the amount invested in each portfolio firm. Eqs. (3) and (4) therefore consider the number of successful portfolio investments T by investor i adjusted for the amount Inv_{ij} invested in firms j . The denominator PF_i is the total amount of investor i ’s portfolio on August 25, 2014. The weighted distances in the overall portfolio is therefore

¹⁰ Source: Institute for Employment Research (IAB). Male and female names from 1990 to 2011 from German employees.

$$(3) \quad wd_i = \sum_{j=1}^T \frac{Inv_{ij} * d_{ij}}{PF_i}.$$

Again, the calculation of the benchmark portfolio considers all available firms four weeks before the first investments. Because investors could have included any firm in their portfolio after they identified equity crowdfunding as a new asset class, we calculate the local bias, considering all available campaigns after the first investment of investor i until the end of our sample period.

The weighted portfolio local bias is as follows:

$$(4) \quad LocalBiasPF_i = \frac{d_{iM} - wd_i}{d_{iM}}.$$

5. Results

5.1. Local Bias in Equity Crowdfunding

From our theoretical considerations in section 3.2., we generally expect a local bias to exist in equity crowdfunding. Despite the lower *ex ante* search costs in the digital domain, we conjecture that equity crowdfunding portals cannot deliver credible information to solve the agency problems between the founder and investors. This situation makes it worthwhile for some investor groups to collect additional information, which they can do more cheaply if living close to the venture. In addition, monitoring the firm *ex post* solely via the Internet is not feasible with the current equity crowdfunding portals because their structures do not allow investors to engage directly with the founders. Consequently, local investors could benefit from superior information and have more scope to actively control the founders when living nearby.

Because we only observe two platforms in our sample, we did not state an explicit hypothesis about whether investors on one of the two platforms would exhibit a larger local bias. Nevertheless, we hypothesized that investors are more concerned about their investment if they make larger investments. In general, Innovestment forces investors to invest more, by stipulating minimum investments ranging from 500 to 25,000 EUR. By contrast, the minimum ticket for Companisto ranges from 4 to 5 EUR. The high minimum investment ticket at Innovestment should attract more angel-like investors and high-income individuals who are more likely, for example, to conduct on-site due diligence to evaluate the risk of the venture. We therefore expect that Innovestment investors will exhibit a larger local bias and that these investments fail less often.

Panel A of Table 3 shows that investments in equity crowdfunding in general exhibit a local bias. The average distance of crowd investments in our sample is 1.2% closer than the average distance of the benchmark portfolio, and this difference is statistically different from zero at the 5% level. However, this finding is mainly driven by investments on Innovestment, on which the average distance of actual investments is 10.6% closer than the benchmark portfolio; on Companisto, investments are only 0.4% closer than the respective benchmark portfolio, which is not significantly different from zero. The difference in the local bias between Innovestment and Companisto investments is statistically significant (difference of means t-test, $p < 0.001$). Moreover, the local bias on Innovestment exists only for investments from investors located in Germany. In contrast with the findings of Baltzer et al. (2013), foreign equity crowdfunding investors do not skew their investments toward more local firms. After we exclude family and friends from our analysis, which represent 23% of the investments, the local bias becomes smaller for investments on both portals, which indicates that this investor group explains the local bias, at least partly. However, for Innovestment the average distance of actual investments is still 8.1% closer than the distance of the respective benchmark investments, after we exclude family and friends from the analysis. This result remains statistically significant at the 1% level.

Panel B of Table 3 shows the results for investor portfolios. When considering portfolios instead of individual investments, we find an overall stronger local bias, with the average distance of actual portfolios being 10.1% closer than that for the respective benchmark portfolios. Moreover, the local bias of investment portfolios now holds for both portals, with Innovestment again showing a larger local bias (18.1%) than Companisto (9.5%). The local bias for both portals is statistically different from zero. Moreover, the difference in the local bias between the two portals is statistically significant (difference of means t-test, $p < 0.001$). Furthermore, we find that German investors on both portals show a significant local bias. On Companisto, the average distance of equity crowdfunding portfolios of foreign crowd investors is 1.4% farther away than the respective benchmark portfolios. This result is significant at the 1% level. Excluding family and friends from our analysis again reduces the local bias for equity crowdfunding portfolios. The local bias, however, remains positive and significant at the 1% level for both portals.

In summary, we find strong evidence of a local bias in equity crowdfunding. The differences between the two portals Companisto and Innovestment indicate that portal design affects the local bias of crowd investors. We therefore cannot reject our conjecture that investments on Innovestment exhibit a larger local bias, presumably because of the higher minimum investments. By requiring a higher minimum investment and running a second-price auction

mechanism, Innovestment potentially also attracts more professional investors who have greater incentives to control and monitor the founder and therefore tend to invest in more local firms. By contrast, investors on the portal Companisto, which requires a much lower minimum investment and runs a simple first-come, first-served auction mechanism to allocate shares, exhibit a much smaller local bias, presumably because solving the agency problem with the founder is not feasible when transaction costs relative to the small investment amounts are too high.

– Table 3 around here –

5.2. Contributing Factors to the Local Bias in Equity Crowdfunding

In this section, we test our hypotheses as outlined in section 3.2. Our dependent variable is the local bias of individual investments as outlined in section 4.2.1, which allows us to identify the effect of campaign-specific factors on the geographic biasedness of investment decisions.

In the baseline specification in Table 4 (Panel A, columns (1) and (2)), we include basic campaign characteristics next to firm dummies to control for the specific effects of each campaign. We include the baseline specification in each subsequent regression (Table 4, Panels B–D) but do not report it again as the results remain similar in terms of magnitude and statistical significance. First, our findings suggest that relative to the benchmark portfolio, investors on Innovestment are located closer to target firms than investors on Companisto. Second, the local bias occurs mostly in short campaigns. Third, a higher firm valuation is associated with the campaign attracting investments with a larger local bias. This effect might result from a higher price per share, making it necessary for investors to examine more closely the activities of the start-up firm. Fourth, a higher population density is negatively associated with a lower local bias. The specific industry of the firm also affects the local bias. The base category industry is transportation, which exhibits a larger local bias than all other industries except for financial and insurance activities (*Industry_finance*) and the art, entertainment, and recreation sector (*Industry_entertainment*).

While firm fixed effects capture the unobserved variation among campaigns, in a next step we also consider venture quality more explicitly in Table 4 (Panel A, columns (3) and (4)). We find that investors reveal a larger local bias if the total amount of capital raised during a previous equity crowdfunding campaign is larger, the business plan of the venture is shorter and more readable, and the business plan includes more pictures. A firm that incorporates under a legal form with a minimum capital requirement of more than 1 EUR, which indicates that the venture possesses more assets that could be controlled, also positively affects the local bias. In a similar

vein, the local bias of individual investors is also larger if the start-up owns more patents. The tendency to invest local relative to a benchmark portfolio increases by 38.4% if the start-up firms owns one more patent. This is in contrast with findings for the U.S. venture capital market, in which Cumming and Dai (2010) find that the number of patents is negatively correlated with the local bias.

Panel B of Table 4 shows that angel-like investors who invest at least 5,000 EUR in an equity crowdfunding campaign (*Investment_5k*) exhibit a local bias that is 5.1 percentage points larger (columns (2) and (6)) than the local bias of the remaining crowd, which is in line with agency theory and hypothesis 1. This effect, however, vanishes when we control for family and friend investors (columns (4) and (8)). While early investments during the first three days of the campaign (*Investment_first3days*) do not affect the local bias, the combination of early investments and angel-like investors significantly and positively affects the local bias (*Investment_5k x Investment_first3days*), even when we control for family and friend investors (columns (4) and (8)). Investments by an angel-like investor who invests during the first three days of the campaign increase the local bias by 13.5 to 14.2 percentage points, which is statistically significant at the 1% level. We therefore find support for hypothesis 1, which states that angel-like investors who make larger investments exhibit a larger local bias.

In line with the descriptive statistics and hypothesis 2, the regression results in Table 4 (Panel B) reveal that family and friend investors (*Investor_familyfriends*) have a significantly larger local bias than the regular crowd. Investments by family and friends on average have a local bias that is 6.3 percentage points larger than the local bias of other investors. This result provides support for hypothesis 2, which states that the local bias is larger for investors with personal ties to the entrepreneur. It is also in line with Agrawal et al.'s (2015) finding that this investor group matters most with regard to local proximity in reward-based crowdfunding.

Panel C of Table 4 accounts for the experience of investors. As we state in hypotheses 3, more experienced investors should show a smaller local bias. We consider the size of the equity crowdfunding portfolio, as measured by the number of investments (*Investor_#investments*), and the total portfolio amount (*Investor_portfolioamount*) as proxies of experience in equity crowdfunding. In line with the conjecture that more experienced investors exhibit fewer behavioral anomalies, we find that the total portfolio amount reduces the local bias, which is statistically significant at the 1% level. If the total portfolio amount of an investor increases by 1,000 EUR, the local bias decreases by 0.3 percentage point. The number of investments and the average investment size have no significant impact on the local bias. Arguably, as indicators of socioeconomic status, regional characteristics might also be proxy variables for investment

experience. We find that an increase in the average gross domestic product per person in the region where the investor lives by 1,000 EUR decreases the local bias by 0.1 percentage point. Likewise, investors who live in large cities exhibit a 3.4 percentage points smaller local bias.

As investment experience in equity crowdfunding and regional characteristics might be a weak proxy variable for investment experience overall, we use survey data on past investor experience as a more direct measure of investment experience, which is available for Innovestment investors only. The results in Table 4 (Panel C, columns 2 and 5) show that past investment experience has no effect on the local bias, except for investors who invested in real estate projects exhibiting a 6.8 percentage points larger local bias. However, this finding is only weakly significant at the 10% level. Past investment experience in fixed-term deposits, other fixed-income products, stocks, commodities, funds, certificates, and other corporate investments did not affect the local bias of crowd investors.

Furthermore, we found no effect of control variables such as the gender of the investor or whether he or she misspelled the location of origin, the latter of which might have been a good proxy for how diligently the investment decision was made. Overall, the evidence for hypothesis 3 is mixed. While our measures on investment experience on traditional capital markets show no significant effect, the proxy variable of portfolio diversification in equity crowdfunding negatively affects the local bias, which is in line with the notion that more experienced investors adhere to biases to a lesser extent than more active investors and cannot solve the agency problem. Responses to the survey on past investment experience, however, indicate stated experience on capital markets, while the crowdfunding portfolio diversification provides a revealed measure of investment experience. Consequently, we are somewhat confident that investment experience negatively affects the local bias.

Finally, we investigate hypothesis 4 to determine the effect of herding and timing on the tendency for a local bias. Panel D of Table 4 shows that investors who invest during the weekend (*Investment_weekend*) have a relatively lower local bias, which is in line with the notion that weekend investors are less professional and do not exercise control. On average, investing on the weekend decreases the local bias by 2.2 to 2.8 percentage points as compared with weekday investments, which is in line with hypothesis 4. We further control for investments pledged on weekends during the first three days of the campaign, to account for the timing of campaign starts, and find no significant impact for this interaction term on the local bias.¹¹ Even when we consider additional control variables, the results remain robust, and

¹¹ We further checked whether investors received updates before the start of the campaign or whether some investors had early investment opportunities. We did not find any cases in which this applied.

the effect sizes are the same. Our herding variable (*Investment_#earlier*) consists of the number of investments pledged earlier that day (see Hornuf and Neuenkirch [2017], who use the same measure). Panel D also shows no significant effect for this variable. Furthermore, the number of angel-like investors who invested 5,000 EUR or more in the focal campaign (*Investment_#earlier5k*) does not affect the local bias of other investors. Furthermore, investing on evenings (*Investment_evening*) or at night (*Investment_night*) does not affect the local bias either.

– Table 4 around here –

5.3. Local Bias and Firm Failure

In total, we consider 74 campaigns of 68 unique firms in our sample. The variable of interest—firm failure—was constructed as of November 1, 2019, when we collected data for the last time on insolvencies and liquidations. Given that our observation period ends on August 28, 2014, we consider a sufficient failure period of more than five years. During that time, 31 of the firms in our sample went into insolvency, were liquidated, or were dissolved. None of them experienced an exit event in the form of a buy-out through a venture capital fund. In what follows, we investigate firm failure and do not report returns on investment, because recovery rates are unknown to us and thus we could only speculate on the realized returns of investors in the form of a cash payout. However, little is lost by reporting firm failure rates because we expect recovery rates to be close to 0%, given that start-ups often have no significant assets and the financial instruments used in equity crowdfunding are subordinate to ordinary debt.

Table 5 shows that investors who directed their investments to local firms lost their investments significantly more often than other investors (37.7% vs. 34.9%), which indicates that, in general, investing locally constitutes a behavioral anomaly rather than a rational preference. While one of the major differences between local investments in peer-to-peer lending (Lin & Viswanathan, 2015) and equity crowdfunding is that investors can make additional efforts to gather information about the quality of the firm raising funds, there is no evidence that this benefit pays off for local investors, who should more easily be able to screen and monitor a venture. In line with hypothesis 5, we find that regular investors directing their investments to more local firms more often pick start-ups that run into insolvency, are liquidated, or are dissolved. This result is driven by investors who choose to invest on Companisto. For Companisto, we find that local investments are clearly more likely to fail (38.0%) than more distant investments (34.4%). For Innovestment, we find that local investments, which might be

associated with more screening or monitoring activities, lead to a clearly lower failure rate for local investment (34.8%) than more distant firms (41.4%). This finding is in line with agency theory and the notion that more sophisticated investors can screen and monitor firms better if they live close.

– Table 5 around here –

In Table 6, we test hypothesis 5 in a multivariate setting. In columns (1) and (3), we include a dummy variable that equals 1 if the local bias is positive (*Localbias*), which represents our variable of interest. In columns (2) and (4), we consider the local bias of individual investment decisions (*Lb_investment*) as a continuous variable of interest as defined in section 2.4.1.

As a starting point, we estimate a probit model that identifies factors affecting the probability of whether an investment ultimately failed or not. Columns (1) and (2) of Table 6 show the results from the probit regression and report average marginal effects. Thereafter, we examine when the investment fails by performing a Cox proportional hazards model. Columns (3) and (4) show the results from the proportional hazards model and report hazard ratios. When using the somewhat crude measure of a dummy variable that captures whether the local bias is positive or not, we find no significant effect of local investments on firm failure. Simply being located closer than the benchmark portfolio does not improve any of the screening or monitoring activities. However, when measuring the local bias as a continuous variable in the multivariate setting, we find a significant, negative effect on the probability that an investment fails.

If the local bias of individual investment increases by 100 percentage points, the probability of firm failure decreases by 4.1%, when we hold all other variables constant. In the survival analysis, we find that an increase of the local bias by 100 percentage points is associated with a 29.2% lower hazard that an investment fails, holding all other variables constant. This finding is in line with hypothesis 5.

– Table 6 around here –

5.4. Robustness Checks

We perform robustness tests on our analysis. First, we restrict our investor sample to investors who provided their exact location. Second, we restrict our sample to German investors only and run a robustness test by excluding investors with the most popular German names.

First, as discussed in section 4.1., we restrict the Companisto sample to investors who provided their exact location. Web Appendix Table W1 (Panel A) reveals that actual crowd investments show an even stronger local bias of 2.3%, which is an increase of 1.1 percentage points, compared with the full sample in which we needed to approximate the exact location for 32% of the investors. Furthermore, the average distance of actual investments on Companisto is now 1.2% closer than the average distance of the benchmark portfolio, and this difference is now statistically different from zero. Again, this finding is driven by German and not foreign investors. When considering portfolios instead of individual investments, we find an overall stronger local bias, with the average distance of actual portfolios being 13.5% closer than that for the respective benchmark portfolio (Web Appendix Table 1, Panel B).

For the regressions results in Web Appendix Table W2 (Panel A), we observe qualitatively and significantly similar results, except for some of the variables. Campaigns that were successfully funded (*Campaign_success*) are now significant with regard to our baseline regression not including other campaign controls. Furthermore, for the restricted sample we find an increase in the local bias of 9.4 percentage points for family and friend investors (vs. 6.3%; Web Appendix Table 2, Panel B). The effect of angel-like investors who invest more than 5,000 EUR during the first three days of a campaign is only weakly significant at the 10% level, which could be due to the reduction in statistical power of the smaller sample. With regard to investor characteristics, the negative effect of investors living in a city with at least one million inhabitants on the local bias is more pronounced (12.7 vs. 3.4 percentage points). With regard to herding and timing (Web Appendix Table 2, Panel D), we find only a statistically weak effect for investments during the weekend, which could again be due to the reduction in statistical power. The results of some control variables now yield mixed results. For example, the ratio of the total funding amount reached to the funding goal at the time of the investment decision predicts an increase in the local bias, but not if data are winsorized.

With regard to firm failure (Web Appendix Table W3), investors who directed their investments to local firms lost their investments generally less often (39.3% vs. 43.9%). This result is driven by investors who choose to invest on both Companisto and Innovestment. The crude measure

of the local bias dummy variable now also yields a significant result, indicating that a positive local bias decreases the probability of firm failure by 3.6%, when we hold all other variables constant (Web Appendix Table 4). The remaining results remain unchanged.

Second, when excluding investments by users with the 20 most popular German names (Web Appendix Table W5) we observe slightly stronger effects than before. One exception is that angel-like investors investing during the first three days of the campaign now exhibit a somewhat smaller local bias (11.5% vs. 13.5%; see Web Appendix Table 6, Panel B). With regard to firm failure, we obtain similar results. Furthermore, in unreported regressions, we excluded the 20 most popular names in our sample. The results remain almost identical and are available on request. Finally, when we exclude international investors from our analyses, the results again reveal somewhat stronger effects than before and remain largely identical in terms of statistical significance (Web Appendix Tables 9–12).

6. Discussion and Conclusion

This paper contributes to the nascent and scarce literature on investor behavior in equity crowdfunding (Block, Hornuf, & Moritz, 2018; Vismara, 2018; Vulkan, Åstebro, & Sierra, 2016). Early literature has examined determinants of funding success and investment dynamics as well as the crowd's willingness to pay for cash flow rights. More recently, scholars have begun investigating the determinants of individual investment decisions. Although Günther et al. (2018) find that geographic distance is negatively correlated with investment probability, they do not consider benchmark portfolios or behavioral anomalies. Our perspective is different in that we investigate what determines the local bias of individual investments and investor portfolios.

We began with the question whether a local bias occurs in equity crowdfunding. Our results reveal that a local bias exists for individual investments and investment portfolios. We show that the average distance of actual crowd investments is 1.2% closer for individual investments and 10.1% for investor portfolios than the average distance of the respective benchmark portfolios. However, we find that the effect varies significantly for portals, with investors on Innovestment showing a significantly larger local bias. This finding is most likely due to Innovestment's higher minimum investment tickets and its second-price auction mechanism, which presumably attracts more sophisticated investors. Although, in general, family and friends show a larger local bias, we find that the remaining investors still exhibit a local bias, even when controlling for this specific investor group. Angel-like investors also have a larger

local bias, which might stem from their engaging in more on-site screening and monitoring. In line with the notion that investors who have a better diversified and larger equity crowdfunding portfolio do not have the capacity to screen and monitor each and every portfolio firm, we find that this group exhibits a smaller local bias.

Research on reward-based crowdfunding shows that backers who identify themselves with projects in social networks have a higher pledge-to-backer ratio (Kromidha & Robson, 2016). We therefore investigated whether the firms in our sample develop products or services that have an obvious local appeal. However, not a single craft brewery or community-related service firm appeared in our sample, which would have indicated such a local product focus. The firms in our sample, for example, have developed a laser-based process to produce nanoparticle or offer a nationwide subscription service for toys and games. Nevertheless, our study has clear limitations, which offer fruitful avenues for further research.

First, while a local bias might constitute a decision-making anomaly that deviates from an optimally diversified portfolio (Markowitz, 1952), investing in more local firms might well be profitable for investors if they can extract important information through on-site screening and monitoring. Our analysis provides first evidence that portal design plays a crucial role in attracting a more sophisticated crowd. On Companisto—which requires a lower minimum investment and runs a simple first-come, first-served auction—local investors more often chose firms that later went into insolvency or were dissolved. By contrast, local investors on Innovestment—on which the minimum investment is relatively higher and tickets are allocated through a second-price auction—less often chose firms that went into insolvency or were dissolved. However, although Innovestment apparently attracted a more sophisticated crowd, the portal itself became insolvent in 2017. This provides important avenues for future research, most notably in the field of industrial relations and platform competition. If high-quality equity crowdfunding portals attract more sophisticated investors, but these portals systematically fail more frequently, the equity crowdfunding industry might head toward a lemons market. Future research should investigate different types of portals and analyze which portal characteristics attract a more sophisticated crowd. Furthermore, whether portfolios directed to more local firms outperform the benchmark portfolio in terms of returns is a matter that should be investigated empirically when data are available on the performance of these investments. Second, our research shows that portal design matters. However, although the features we have identified are clearly dominant on the portals we investigate, we can only speculate that they drive the differences. Additional research might therefore collect data on more portals to unpack the exact features of portal designs that determine the local bias.

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Table 1. Location of Venture Capital and Equity Crowdfunding Investments.

The table shows the 10 most relevant cities where venture capital funds, equity crowdfunding investors, and target firms are located. We calculate the frequencies for target firm and investor location separately in percentages for venture capital and equity crowdfunding investments.

	Venture capital sample				Equity crowdfunding sample			
	Target firms	%	Investors	%	Target firms	%	Investors	%
1	Berlin	39.8	Berlin	16.2	Berlin	67.5	Berlin	16.2
2	Munich	11.9	Munich	17.7	Hamburg	13.1	Munich	10.8
3	Hamburg	5.7	Bonn	14.5	Düsseldorf	6.4	Düsseldorf	7.6
4	Cologne	4.0	Frankfurt	4.8	Munich	3.3	Stuttgart	6.4
5	Potsdam	1.7	Paris	3.3	Neuenhagen	2.4	Hamburg	5.5
6	Stuttgart	1.6	London	3.1	Mannheim	2.1	Hannover	3.5
7	Aachen	1.5	Landshut	3.0	Hannover	0.9	Wiesbaden	3.3
8	Dresden	1.3	Hamburg	2.6	Velten	0.7	Dresden	1.9
9	Düsseldorf	1.3	Cologne	2.5	St. Augustin	0.4	Kiel	1.8
10	Hannover	1.3	Moscow	2.0	Herzogenrath	0.4	Cologne	1.6

Table 2. Summary Statistics.

Panel A provides summary statistics of sampled portals, firms, investors, and investments. The sample consists of 74 equity crowdfunding campaigns by firms headquartered in Germany that received 20,460 investments by 6,599 investors between November 6, 2011, and August 25, 2014. Panel B provides summary statistics of mean investments in EUR for different distance categories. Panel C presents summary statistics and presents the number of observations, means, standard deviations, minimum values, and maximum values for all variables. Column “Yes” indicates that a dummy variable takes the value of 1. Column “Corr” shows bivariate correlations with the local bias for individual investments. Panel D provides the summary statistics separately for Companisto and Innovestment. The last column reports the difference in means between investments on Companisto and Innovestment. We test the significance of the differences in means using a two-tailed *t*-test. ***, **, and + indicate significance at the 1%, 5%, and 10% level. Variables reported are defined in Appendix A.

PANEL A: Data sample

	Portal		Location		Total
	Companisto	Innovestment	Germany	Foreign	
<i>Equity Crowdfunding Investments</i>					
Firms	30	44	74	-	74
Investors	6,167	432	5,948	651	6,599
Investments (#)	18,837	1,623	18,898	1,562	20,460
Investments (EUR)	6,250,590	4,512,152	9,755,644	1,007,098	10,762,742
<i>Venture Capital Investments</i>					
Venture capitalists	-	-	950	271	1,221
Entrepreneurs	-	-	1,221	-	1,221

PANEL B: Investments by distance categories

	Investments (EUR)								
	Companisto			Innovestment			Total		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
<100 km	3,430	320	944	286	3,434	6,378	3,716	560	2,152
100 km – 300 km	3,912	281	864	436	2,733	3,451	4,348	527	1,551
300 km – 500 km	6,331	314	1,013	608	2,643	3,637	6,939	518	1,590
500 km – 700 km	4,811	387	1,131	259	2,586	2,705	5,070	500	1,350
>700 km	353	570	1,661	34	1,818	1,087	387	680	1,656
Total	18,837	332	1,021	1,623	2,780	4,073	20,460	526	1,647

PANEL C: Variables

	N	Mean	SD	Min.	Max.	Yes	Corr.	Difference in Means
Lb_investment	20,460	0.012	0.528	-4.648	0.998	-	-	0.101***
Lb_portfolio	6,599	0.101	0.426	-4.974	0.999	-	-	0.086***
Localbias	20,460	0.520	0.500	0	0	10,632	-	-0.065***
Firm failure	20,460	0.363	0.481	0	1	7,418	-0.019***	0.017
Campaign_days	20,460	70	39	7	128	-	0.007	-3.901***
Campaign_Innovestment	20,460	0.079	0.270	0	1	1,623	0.052***	-2.958***
Campaign_fundingratio	20,460	4.568	4.607	0.000	19.372	-	-0.023***	-0.139***
Campaign_success	20,460	0.989	0.105	0	1	20,234	-0.022**	-1,092***
Population_density	20,460	3,373	864	168	4,601	-	0.059***	-0.682***
Firm_valuation	20,460	1,763,050	854,350	420,000	10,000,000	-	-0.113***	-0.122***
Industry_trading	20,460	0.198	0.398	0	1	4,041	-0.078***	-0.024***
Industry_transportation	20,460	0.022	0.148	0	1	456	0.024***	-0.063***
Industry_entertainment	20,460	0.059	0.235	0	1	1,201	0.028***	-0.061***
Industry_finance	20,460	0.057	0.231	0	1	1,158	-0.013+	0.106***
Industry_IT	20,460	0.367	0.482	0	1	7,515	0.019**	-0.063***
Industry_manufacturing	20,460	0.259	0.438	0	1	5,309	0.015**	0.137***
Industry_otherservice	20,460	0.011	0.104	0	1	223	0.016**	0.090***
Industry_techservice	20,460	0.027	0.163	0	1	557	0.036***	0.456***
Firm_age	20,460	493	354	0	4,013	-	-0.063***	-0.366***
Number_founder	20,460	2	1	1	6	-	0.013**	-0.122***
Founder_startupexperience	20,460	0.716	0.451	0	1	14,659	0.056***	0.064***
Firm_legalform_minimum	20,460	0.832	0.374	0	1	17,030	-0.004	0.051***
Filed_patents	20,460	0.028	0.166	0	1	580	-0.001	0.026***
Granted_patents	20,460	0.035	0.183	0	1	710	-0.029***	-0.348***
Total_trademarks	20,460	0.511	0.973	0	3	-	-0.028***	-0.317***
BA_initial	20,460	0.560	0.991	0	4	-	0.034***	-0.417***
VC_initial	20,460	0.561	1.072	0	4	-	-0.039***	-1.550***
Number_employees	20,460	5	6	1	26	-	-0.142***	-0.101***
Funding_prev_succ_campaign	20,460	13,747	40,574	0	175,000	-	0.003	-11.776***
Businessplan_fleshscore	20,460	47	5	34	66	-	-0.017**	0.170
Businessplan_pictures	20,460	17	6	1	46	-	0.034***	0.444**
Businessplan_characters	20,460	26,250	11,076	7,867	118,010	-	0.041***	24,583***
Exper_commodity	1,623	0.244	0.430	0	1	396	-0.055**	-
Exper_deposits	1,623	0.430	0.495	0	1	698	-0.018	-
Exper_fixedincome	1,623	0.311	0.463	0	1	505	-0.036	-
Exper_fundscertif	1,623	0.419	0.494	0	1	680	-0.030	-
Exper_othercorporate	1,623	0.305	0.461	0	1	495	0.003	-
Exper_realestate	1,623	0.310	0.463	0	1	503	-0.016	-
Exper_stocks	1,623	0.463	0.499	0	1	751	-0.048+	-
Investor_averageinvestment	20,253	523	1,489	4	50,000	-	0.025***	2.736***
Investor_bigcity	20,460	0.313	0.464	0	1	6,402	-0.035***	-0.110***
Investor_#investments	20,460	11	15	0	83	-	-0.037***	-0.782***
Investor_familyfriends	20,460	0.230	0.421	0	1	4,711	0.041***	-0.003
Investor_female	18,594	0.130	0.336	0	1	2,416	-0.005	-
Investor_typo	18,837	0.005	0.073	0	1	101	0.005	-
Investor_portfolioamount	20,460	4,340	8,498	0	103,191	-	-0.024***	6.307***
Region_GDPperP	17,530	43,878	16,686	14,776	107,142	-	-0.005	-2.211***
Investment_#earlier	20,460	28.519	53.351	0	375	-	-0.060***	-2.449***
Investment_5k	20,460	0.022	0.146	0	1	446	0.020**	0.121***
Investment_amount	20,460	526	1,647	4	50,000	-	0.024***	2.448***
Investment_first3days	20,460	0.367	0.482	0	1	7,511	-0.028***	-0.161***
Investment_evening	1,623	0.362	0.481	0	1	587	-0.068**	-
Investment_night	1,623	0.076	0.265	0	1	123	0.000	-
Investment_weekend	20,460	0.147	0.354	0	1	3,009	-0.018**	-0.159***

PANEL D: Summary statistics for Companisto and Innovestment

	Companisto							Innovestment							Difference in Means
	N	Mean	SD	Min.	Max.	Yes	Corr.	N	Mean	SD	Min.	Max.	Yes	Corr.	
Lb_investment	18,837	0.004	0.533	-4.648	0.997	-	-	1,623	0.106	0.453	-2.838	0.998	-	-	0.101***
Lb_portfolio	6,167	0.095	0.420	-4.974	0.997	-	-	432	0.181	0.489	-1.136	0.999	-	-	0.086***
Localbias	18,837	0.525	0.499	0	1	9,885	-	1,623	0.460	0.499	0	1	747	-	-0.065***
Firm failure	18,837	0.361	0.480	0	1	6,804	-0.025***	1,623	0.378	0.485	0	1	614	0.060**	0.017
Campaign_days	18,837	73	39	7	128	-	0.022**	1,623	34	8	20	78	-	0.054**	-3.901***
Campaign_fundingratio	18,837	4.803	4.685	0	19	-	-0.01+	1,623	1.844	2.196	0.013	10.671	-	-0.047+	-2.958***
Campaign_success	18,837	1	0	1	1	18,837	-	1,623	0.861	0.346	0	1	1,397	-0.017	-0.139***
Population_density	18,837	3,460	765	866	4,601	-	0.104***	1,623	2,367	1,229	168	4,601	-	-0.084***	-1,092***
Firm_valuation	18,837	1,817,164	841,834	700,000	4,500,000	-	-0.10***	1,623	1,134,979	740,377	420,000	10,000,000	-	-0.062**	-0.682***
Industry_trading	18,837	0.207	0.405	0	1	3,903	-0.08***	1,623	0.085	0.279	0	1	138	0.170***	-0.122***
Industry_transportation	18,837	0.024	0.154	0	1	456	0.028***	-	-	-	-	-	-	-	-0.024***
Industry_entertainment	18,837	0.064	0.244	0	1	1,201	0.033***	-	-	-	-	-	-	-	-0.063***
Industry_finance	18,837	0.061	0.240	0	1	1,158	-0.00	-	-	-	-	-	-	-	-0.061***
Industry_IT	18,837	0.359	0.480	0	1	6,759	0.030***	1,623	0.466	0.499	0	1	756	-0.176***	0.106***
Industry_manufacturing	18,837	0.265	0.441	0	1	4,983	0.013+	1,623	0.201	0.401	0	1	326	0.075**	-0.063***
Industry_otherservice	-	-	-	-	-	-	-	1,623	0.137	0.344	0	1	223	-0.009	0.137***
Industry_techservice	18,837	0.020	0.140	0	1	377	0.029***	1,623	0.111	0.314	0	1	180	0.043+	0.090***
Firm_age	18,837	489	345	0	1,383	-	-0.07***	1,623	535	443	0	4,013	-	0.034	0.456***
Number_founder	18,837	2	1	1	5	-	0.019**	1,623	2	1	1	6	-	0.015	-0.366***
Founder_startupexperience	18,837	0.796	0.403	0	1	14,989	0.079***	1,623	0.673	0.469	0	1	1,093	-0.044+	-0.122***
Firm_legalform_minimum	18,837	0.827	0.378	0	1	15,582	-0.00	1,623	0.892	0.310	0	1	1,448	-0.007	0.064***
Filed_patents	18,837	0.024	0.154	0	1	457	0.001	1,623	0.076	0.265	0	1	123	-0.065**	0.051***
Granted_patents	18,837	0.033	0.178	0	1	614	-0.02***	1,623	0.059	0.236	0	1	96	-0.056**	0.026***
Total_trademarks	18,837	0.539	1.000	0	3	1,743	-0.02***	1,623	0.190	0.444	0	2	-	0.161***	-0.348***
BA_initial	18,837	0.585	1.015	0	4	-	0.046***	1,623	0.267	0.564	0	2	-	-0.143***	-0.317***
VC_initial	18,837	0.594	1.102	0	4	-	-0.03***	1,623	0.176	0.500	0	2	-	-0.166***	-0.417***
Number_employees	18,837	5	6	1	22	-	-0.14***	1,623	4	4	1	26	-	-0.113***	-1.550***
Number_prev_succ_campaign	18,837	0.132	0.338	0	1	-	0.021**	1,623	0.031	0.173	0	1	-	-0.051**	-0.101***
Funding_prev_succ_campaign	18,837	14,681	41,881	0	175,000	-	0.009	1,623	2,905	16,362	0	97,000	-	-0.054**	-11.776***
Businessplan_fleschscore	18,837	47	5	34	56	-	-0.02***	1,623	47	7	37	66	-	0.063**	0.170
Businessplan_pictures	18,837	17	5	4	32	-	0.034***	1,623	17	10	1	46	-	0.035	0.444**
Businessplan_characters	18,837	24,299	5,029	9,324	33,212	-	0.016**	1,623	48,883	26,400	7,867	118,010	-	0.021	24,583***
Exper_commodity	-	-	-	-	-	-	-	1,623	0.244	0.430	0	1	396	-0.055**	-
Exper_deposits	-	-	-	-	-	-	-	1,623	0.430	0.495	0	1	698	-0.018	-
Exper_fixedincome	-	-	-	-	-	-	-	1,623	0.311	0.463	0	1	505	-0.036	-
Exper_fundscertif	-	-	-	-	-	-	-	1,623	0.419	0.494	0	1	680	-0.030	-
Exper_othercorporate	-	-	-	-	-	-	-	1,623	0.305	0.461	0	1	495	0.003	-
Exper_realestate	-	-	-	-	-	-	-	1,623	0.310	0.463	0	1	503	-0.016	-
Exper_stocks	-	-	-	-	-	-	-	1,623	0.463	0.499	0	1	751	-0.048+	-
Investor_averageinvestment	18,837	332	751	4	25,000	-	-0.00	1,416	3,068	4,153	500	50,000	-	0.026	2.736***
Investor_bigcity	18,837	0.322	0.467	0	1	6,059	-0.03***	1,623	0.211	0.408	0	1	343	0.027	-0.110***
Investor_#investments	18,837	12	15	1	83	-	-0.02***	1,623	4.042	5.730	0	30	-	-0.065**	-0.782***
Investor_familyfriends	18,837	0.231	0.421	0	1	4,342	0.037***	1,623	0.227	0.419	0	1	369	0.101***	-0.003
Investor_female	18,594	0.130	0.336	0	1	2,416	-0.00	-	-	-	-	-	-	-	-
Investor_typo	18,837	0.005	0.073	0	1	101	0.005	-	-	-	-	-	-	-	-
Investor_portfolioamount	18,837	3,840	7,483	4	59,490	-	-0.02***	1,623	10,147	14,966	0	103,191	-	-0.102***	6.307***
Region_GDPperP	16,139	44,053	16,582	14,776	107,142	-	-0.00	1,391	41,842	17,736	15,840	107,142	-	-0.044+	-2.211***
Investment_#earlier	18,837	30.462	55.015	0	375	-	-0.05***	1,623	5.970	14.212	0	98	-	-0.110***	-2.449***
Investment_5k	18,837	0.012	0.110	0	1	229	0.010	1,623	0.134	0.340	0	1	217	0.008	0.121***
Investment_amount	18,837	332	1,021	4	25,000	-	0.006	1,623	2,780	4,073	500	50,000	-	-0.001	2.448***

Investment_first3days	18,837	0.380	0.485	0	1	7,156	-0.02***	1,623	0.219	0.414	0	1	355	0.040	-0.161***
Investment_evening	-	-	-	-	-	-	-	1,623	0.362	0.481	0	1	587	-0.068**	-
Investment_night	-	-	-	-	-	-	-	1,623	0.076	0.265	0	1	123	0.000	-
Investment_weekend	18,837	0.160	0.366	0	1	3,009	-0.01+	1,623	0	0	0	0	0	-	-0.159***

Table 3. Local Bias.

Local bias for individual investments (Panel A) and investor portfolios (Panel B) in percentages. The table categorizes the local bias according to portals and the location of the investor. Furthermore, we calculate local biases by excluding family and friend investors. In line with Agrawal et al. (2015), we define investors as family and friends if (1) they invest in the focal start-up before investing in any other start-up, (2) their investment in the focal start-up is their largest investment, and (3) the investor invests in no more than three other start-ups. We report a one-sample, two-tailed t-test for the null hypothesis that local biases are zero. ***, **, and + indicate statistical significance at the 1%, 5%, and 10% level. Variables reported are defined in Appendix A.

PANEL A: Local bias individual investments								
	N	Mean	SD	Min.	25th	Median	75th	Max.
<i>By portal</i>								
Companisto	18,837	0.4	53.3	-464.8	-13.1	-0.2	8.2	99.7
German investors	17,431	0.5	55.2	-464.8	-13.1	-0.2	9.2	99.7
Foreign investors	1,406	-0.6	18.4	-46.5	-12.5	-0.1	3.2	80.9
Innovestment	1,623	10.6***	45.3	-283.8	-8.8	1.0	33.9	99.8
German investors	1,467	11.6***	47.0	-283.8	-8.8	1.1	39.1	99.8
Foreign investors	156	1.0	22.0	-59.9	-8.4	-0.2	11.6	67.2
<i>By country</i>								
German investors	18,898	1.3***	54.7	-464.8	-12.7	-0.1	10.8	99.8
Foreign investors	1,562	-0.5	18.8	-59.9	-12.4	-0.1	4.0	80.9
Without family and friends	15,749	0.0	54.8	-464.8	-13.4	-0.2	9.2	99.7
Companisto	14,495	-0.7	55.7	-464.8	-13.5	-0.2	7.4	99.7
Innovestment	1,254	8.1***	42.1	-149.3	-8.3	0.7	27.9	99.7
Total	20,460	1.2**	52.8	-464.8	-12.6	-0.1	9.6	99.8
PANEL B: Local bias investor portfolio								
	N	Mean	SD	Min.	25th	Median	75th	Max.
<i>By portal</i>								
Companisto	6,167	9.5***	42.0	-497.4	-8.5	-2.5	18.4	99.7
German investors	5,559	10.7***	43.8	-497.4	-8.4	-2.4	21.6	99.7
Foreign investors	608	-1.4**	15.8	-38.3	-9.5	-2.5	4.3	68.5
Innovestment	432	18.1***	48.9	-113.6	-24.4	11.1	50.5	99.9
German investors	389	19.5***	50.6	-113.6	-25.3	15.6	62.3	99.9
Foreign investors	43	4.8	25.8	-32.4	-14.3	0.3	29.8	78.8
<i>By country</i>								
German investors	5,948	11.3***	44.3	-497.4	-8.6	-2.2	24.9	99.9
Foreign investors	651	-1.0	16.7	-38.3	-9.9	-2.3	5.5	78.8
Without family and friends	2,126	5.2***	36.6	-497.4	-7.8	-1.5	11.9	99.3
Companisto	1,938	4.6***	36.3	-497.4	-7.5	-1.8	10.6	99.3
Innovestment	188	10.8***	39.3	-87.3	-21.3	6.2	31.0	99.3
Total	6,599	10.1***	42.6	-497.4	-8.7	-2.2	21.1	99.9

Table 4. Regression Results.

The table shows the results of regressions on individual investment decisions. The dependent variable is the individual investment local bias as defined in section 4.2.1. Panel A displays the results of our baseline regressions for the sample of 20,460 investments. Columns (1) and (2) show the results for the ordinary least squares regressions without adding additional firm-specific control variables to the model. Columns (3) and (4) display the results of the ordinary least squares regressions with additional firm-specific control variables. Columns (2) and (4) present the results for the sample in which we winsorize the data at the bottom 10%. All regressions include dummy variables to control for firm fixed effects at the campaign level. Next to the variables reported in Panels B–D, every regression also includes all variables from Panel A column (1). Additional controls indicate that the firm-specific control variables from Panel A column (3) are included. Panel B reports the effect of different investor types. Panel C considers the experience of the investors. In Panel D, we test whether herding and timing have an effect on the local bias. Standard errors are clustered by investor and are reported in parentheses. ***, **, and + indicate statistical significance at the 1%, 5%, and 10% level. Variables reported are defined in Appendix A.

Panel A: Baseline regressions				
	(1)	(2) Winsorized	(3)	(4) Winsorized
Campaign_Investment	0.490*** (0.087)	0.392*** (0.078)	0.598*** (0.085)	0.538*** (0.081)
Campaign_fundingratio	0.000 (0.001)	-0.005*** (0.001)	0.000 (0.001)	-0.005*** (0.001)
Campaign_success	0.232 (0.178)	0.207 (0.166)	-0.224 (0.212)	-0.225 (0.202)
Campaign_days	-0.064*** (0.014)	-0.052*** (0.013)	-0.058*** (0.009)	-0.045*** (0.008)
Firm_valuation	0.093*** (0.013)	0.092*** (0.013)	0.081*** (0.012)	0.079*** (0.011)
Population_density	-0.258*** (0.045)	-0.232*** (0.042)	-0.231*** (0.039)	-0.202*** (0.037)
Industry_manufacturing	-0.678*** (0.048)	-0.532*** (0.043)	0.001 (0.224)	-0.619*** (0.059)
Industry_trading	-0.378*** (0.145)	-0.250+ (0.134)	0.390+ (0.217)	-0.339+ (0.186)
Industry_IT	-0.329*** (0.114)	-0.255** (0.106)	0.649*** (0.220)	-0.097+ (0.055)
Industry_finance	-0.074 (0.071)	-0.041 (0.062)	0.948*** (0.248)	0.166** (0.082)
Industry_techservice	-1.186*** (0.116)	-0.806*** (0.093)	-1.056*** (0.109)	-1.428*** (0.214)
Industry_otherservice	-0.297** (0.144)	-0.241+ (0.134)		-0.765*** (0.228)
Industry_entertainment	0.540*** (0.152)	0.452*** (0.135)	0.744*** (0.224)	-0.019 (0.035)

Funding_prev_succ_campaign			0.005*** (0.001)	0.004*** (0.001)
Businessplan_fleschscore			0.021*** (0.006)	0.015** (0.006)
Businessplan_pictures			0.007** (0.003)	0.006+ (0.003)
Businessplan_characters			-0.007*** (0.001)	-0.006*** (0.001)
Number_founder			0.057 (0.041)	0.058 (0.040)
Founder_startuexperience			-0.080 (0.075)	-0.088 (0.069)
Number_employees			0.006 (0.005)	0.003 (0.004)
Filed_patents			-0.047 (0.055)	-0.162*** (0.050)
Granted_patents			0.384*** (0.066)	0.386*** (0.055)
Total_trademarks			-0.035 (0.041)	0.007 (0.038)
Firm_legalform_minimum			0.610*** (0.097)	0.520*** (0.085)
BA_initial			-0.001 (0.014)	0.009 (0.014)
VC_initial			0.010 (0.022)	0.008 (0.019)
Intercept	0.851*** (0.146)	0.769*** (0.131)	-1.123*** (0.317)	-0.099 (0.402)
Firm dummies	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Adjusted R^2	0.061	0.077	0.061	0.077
Observations	20,460	20,460	20,460	20,460

PANEL B: Family, friends, and angel-like investors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Investor_familyfriends	0.063*** (0.008)			0.063*** (0.008)	0.063*** (0.008)			0.063*** (0.008)
Investment_first3days		-0.006 (0.009)		-0.006 (0.010)		-0.006 (0.010)		-0.006 (0.010)
Investment_5k		0.051** (0.026)		0.009 (0.027)		0.051** (0.026)		0.009 (0.027)
Investment_5k x _first3days			0.142*** (0.045)	0.135*** (0.048)			0.142*** (0.045)	0.135*** (0.048)
Firm dummies	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Additional controls	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Adjusted R^2	0.063	0.061	0.061	0.064	0.063	0.061	0.061	0.064
Observations	20,460	20,460	20,460	20,460	20,460	20,460	20,460	20,460

PANEL C: Investor characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
		Innvestment	Companisto		Innvestment	Companisto
Investor_#investments	-0.001 (0.005)			-0.001 (0.005)		
Investor_portfolioamount	-0.003*** (0.001)			-0.003*** (0.001)		
Investor_averageinvestment	0.010+ (0.006)			0.010+ (0.006)		
Investment_amount	0.002 (0.006)			0.002 (0.006)		
Region_GDPperP	-0.001*** (0.000)			-0.001*** (0.000)		
Investor_bigcity	-0.034*** (0.011)			-0.034*** (0.011)		
Exper_deposits		0.066 (0.062)			0.066 (0.062)	
Exper_stocks		-0.102 (0.069)			-0.102 (0.069)	
Exper_fundscertif		-0.006 (0.072)			-0.006 (0.072)	
Exper_fixedincome		-0.034 (0.051)			-0.034 (0.051)	
Exper_commodity		-0.044 (0.044)			-0.044 (0.044)	
Exper_realestate		0.068+ (0.041)			0.068+ (0.041)	
Exper_othercorporate		0.043 (0.034)			0.043 (0.034)	
Investor_female			0.000 (0.013)			0.000 (0.013)
Investor_typo			0.043 (0.038)			0.042 (0.038)
Firm dummies	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Additional controls	<i>No</i>	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Adjusted R ²	0.068	0.219	0.050	0.068	0.219	0.050
Observations	17,362	1,623	18,594	17,362	1,623	18,594

PANEL D: Herding and timing										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
									Innvestment	
Investment_#earlier	-0.002 (0.001)			-0.002 (0.001)						
Investment_#earlier5k		0.008 (0.034)			0.004 (0.034)					
Investment_weekend			-0.022** (0.010)	-0.024** (0.010)	-0.022** (0.010)		-0.028** (0.011)			
Investment_first3days						-0.006 (0.009)	-0.013 (0.010)			
Investment_weekend x _first3days							0.036 (0.023)			
Investment_evening								-0.020 (0.022)		-0.021 (0.023)
Investment_night									0.001 (0.034)	-0.007 (0.035)
Firm dummies	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Additional controls	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>
Adjusted R2	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.214	0.214	0.214
Observations	20,460	20,460	20,460	20,460	20,460	20,460	20,460	1,623	1,623	1,623

PANEL D: continued

	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
									Innovation	
Investment_#earlier	-0.002 (0.001)			-0.002 (0.001)						
Investment_#earlier5k		0.008 (0.034)			0.004 (0.034)					
Investment_weekend			-0.022** (0.010)	-0.024** (0.010)	-0.022** (0.010)		-0.028** (0.011)			
Investment_first3days						-0.006 (0.010)	-0.012 (0.010)			
Investment_weekend x _first3days							0.036 (0.023)			
Investment_evening								-0.020 (0.022)		-0.021 (0.023)
Investment_night									0.001 (0.034)	-0.007 (0.035)
Firm dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.214	0.214	0.214
Observations	20,460	20,460	20,460	20,460	20,460	20,460	20,460	1,623	1,623	1,623

Table 5. Local Bias and Firm Failure.

The table shows the percentage of failed firms according to the local bias for individual investments. The local bias for individual investments is defined in section 4.2.1. Positive indicates that the investment was regionally closer than the respective benchmark portfolio; negative indicates that it was farther away than the respective benchmark portfolio. We report a two-sample t-test for testing the equality of the means. ***, **, and + indicate statistical significance at the 1%, 5%, and 10% level.

	Individual investment			
	N	Mean	SD	t-Stat.
<i>By local bias</i>				
Positive (>0)	9,828	37.7	48.5	4.157***
Negative (≤ 0)	10,632	34.9	47.7	
<i>By portal</i>				
Companisto				
<i>By local bias</i>				
Positive (>0)	8,952	38.0	48.5	5.091***
Negative (≤ 0)	9,885	34.4	47.5	
Innovestment				
<i>By local bias</i>				
Positive (>0)	876	34.8	47.7	-2.716**
Negative (≤ 0)	747	41.4	49.3	

Table 6. Firm Failure Regression Results.

The table shows the results of regressions on firm failure. Variable definitions are reported in Appendix A. The dependent variable in columns (1) and (2) is a dummy variable for whether a firm failure occurred or not and in columns (3) and (4) the duration until firm failure. Columns (1) and (2) report the results of a probit model. Coefficients reported are average marginal effects. Columns (3) and (4) report the results of a Cox proportional hazard model. Coefficients reported are hazard ratios. The variables *Industry_finance*, *Industry_techservice*, *Industry_otherservice*, *Industry_entertainment*, *filed_patents*, and *granted_patents* are not included because they predict firm failure perfectly. Standard errors are clustered by investor and are reported in parentheses. ***, **, and + indicate statistical significance at the 1%, 5%, and 10% level.

	(1)	(2)	(3)	(4)
	Probit		Cox	
Localbias	0.001 (0.006)		0.989 (0.027)	
Lb_investment		-0.041*** (0.007)		0.708*** (0.027)
Campaign_Innovestment	-0.077*** (0.023)	-0.074*** (0.022)	0.493*** (0.074)	0.520*** (0.074)
Campaign_fundingratio	-0.033*** (0.001)	-0.033*** (0.001)	0.845*** (0.003)	0.844*** (0.003)
Campaign_success	-0.021 (0.044)	-0.024 (0.044)	0.739 (0.228)	0.694 (0.207)
Campaign_days	-0.028*** (0.001)	-0.028*** (0.001)	0.924*** (0.005)	0.923*** (0.005)
Firm_valuation	0.066*** (0.006)	0.064*** (0.006)	1.370*** (0.050)	1.382*** (0.049)
Population_density	-0.005 (0.005)	-0.003 (0.005)	1.133** (0.067)	1.157*** (0.064)
Industry_trading	0.270*** (0.013)	0.269*** (0.013)	6.677*** (0.468)	6.995*** (0.479)
Funding_prev_succ_campaign	0.000 (0.000)	0.000 (0.000)	0.989*** (0.000)	0.988*** (0.000)
Businessplan_fleshscore	-0.007*** (0.001)	-0.007*** (0.001)	0.991+ (0.005)	0.988*** (0.005)
Businessplan_pictures	0.019*** (0.001)	0.019*** (0.001)	1.098*** (0.008)	1.103*** (0.008)
Businessplan_characters	0.002*** (0.000)	0.002*** (0.000)	1.014*** (0.003)	1.015*** (0.003)
Number_founder	-0.007** (0.003)	-0.006** (0.003)	1.042** (0.018)	1.053*** (0.018)
Founder_startupexperience	0.302*** (0.011)	0.302*** (0.011)	5.512*** (0.454)	5.779*** (0.473)

Number_employees	-0.043*** (0.001)	-0.043*** (0.001)	0.866*** (0.005)	0.856*** (0.005)
Total_trademarks	0.056*** (0.005)	0.055*** (0.005)	1.129*** (0.050)	1.114** (0.047)
Firm_legalform_minimum	-0.038*** (0.009)	-0.035*** (0.009)	0.880*** (0.040)	0.927+ (0.042)
BA_initial	-0.089*** (0.005)	-0.088*** (0.005)	0.840*** (0.021)	0.846*** (0.021)
VC_initial	0.107*** (0.004)	0.106*** (0.004)	1.139*** (0.022)	1.122*** (0.022)
Days at risk	-	-	53,803,660	53,803,660
Number of failures	-	-	7,418	7,418
Pseudo- <i>R</i> ²	0.355	0.357	0.065	0.066
Log-likelihood	-	-	-65250.808	-65169.510
P(Y=1)	36.3%	36.3%	36.3%	36.3%
Observations	20,460	20,460	20,460	20,460

Appendix A. List of Variables.

Variable	Description	Source
<i>Local bias</i>		
Lb_investment	The local bias calculated for the individual investment decision.	Calculation by the authors
Lb_portfolio	The local bias calculated for the investor portfolio.	Calculation by the authors
Localbias	Dummy variable equal to 1 if the local bias for the individual investment decision is positive and 0 otherwise.	Calculation by the authors
<i>Portal and campaign characteristics</i>		
Campaign_days	Number of days the firm accepted investments on the respective portal in #/10.	Companisto and Innovestment
Campaign_Innovestment	Dummy variable equal to 1 if the campaign was run on Innovestment and 0 otherwise.	Companisto and Innovestment
Campaign_fundingratio	The ratio of the total funding amount reached to the funding goal. In the case of individual investments, the current ratio at the time of investment.	Companisto, Innovestment, and calculation by the authors
Campaign_success	Dummy variable equal to 1 if the issuer reached or exceeded the funding goal by the end of the funding period and 0 otherwise.	Companisto and Innovestment
Funding_prev_succ_campaign	Total amount of capital raised during the previous equity crowdfunding campaign in 1,000 EUR.	Companisto and Innovestment
Filed_patents	Number of filed patents by the start-up.	BvD Orbis, PATSTAT
Granted_patents	Number of granted patents owned by the start-up.	BvD Orbis, PATSTAT
Total_trademarks	Number of total trademarks owned by the start-up.	BvD Orbis
Number_founder	Total number of founders.	Companisto and Innovestment
Founder_startupexperience	Dummy variable equal to 1 if at least one of the founders had entrepreneurial experience before founding this start-up and 0 otherwise.	Companisto and Innovestment, start-up website, LinkedIn, Xing
Number_employees	Number of employees at the time of the equity crowdfunding campaign.	Companisto and Innovestment
Businessplan_fleshscore	The text readability of the business plan; calculated with the Flesch Readability Index; 0–30 "very difficult language," 31–50 "difficult," 51–60 "fairly difficult," 51–70 "standard," 71–80 "fairly easy," 81–90 "easy," and 91–100 "very easy language."	Companisto and Innovestment; calculation by the authors

Variable	Description	Source
Businessplan_pictures	Total number of pictures that appeared in the business plan.	Companisto and Innovestment; calculation by the authors
Businessplan_characters	Total number of characters that appeared in the business plan in #/1000.	Companisto and Innovestment; calculation by the authors
Firm_legalform_minimum	Dummy variable equal to 1 if the start-up uses a legal form that requires legal capital higher than 1 EUR (GmbH and AG) and 0 otherwise.	Contracts on Companisto and Innovestment, www.unternehmensregister.de
BA_initial	Total number of business angel investors at the time of investment.	BvD Orbis, Zephyr, Thomson Reuters Eikon, Crunchbase, Companisto, Innovestment, start-up websites, venture capital websites, press releases
VC_initial	Total number of venture capital investors at the time of investment.	BvD Orbis, Zephyr, Thomson Reuters Eikon, Crunchbase, Companisto, Innovestment, start-up websites, venture capital websites, press releases
<i>Firm characteristics</i>		
Firm_valuation	The pre-money valuation of the firm in 1,000,000 EUR.	Companisto and Innovestment
Industry_trading	Dummy variable equal to 1 if the industry of the firm equals <i>trading</i> according to NACE Rev. 2 and 0 otherwise.	Classification by the authors
Industry_transportation	Dummy variable equal to 1 if the industry of the firm equals <i>transportation</i> and <i>storage</i> according to NACE Rev. 2 and 0 otherwise.	Classification by the authors
Industry_entertainment	Dummy variable equal to 1 if the industry of the firm equals <i>art</i> , <i>entertainment</i> , or <i>recreation</i> according to NACE Rev. 2 and 0 otherwise.	Classification by the authors
Industry_finance	Dummy variable equal to 1 if the industry of the firm equals <i>financial and insurance activities</i> according to NACE Rev. 2 and 0 otherwise.	Classification by the authors

Variable	Description	Source
Industry_IT	Dummy variable equal to 1 if the industry of the firm equals <i>information technology</i> according to NACE Rev. 2 and 0 otherwise.	Classification by the authors
Industry_finance	Dummy variable equal to 1 if the industry of the firm equals <i>financial and insurance activities</i> according to NACE Rev. 2 and 0 otherwise.	Classification by the authors
Industry_IT	Dummy variable equal to 1 if the industry of the firm equals <i>information technology</i> according to NACE Rev. 2 and 0 otherwise.	Classification by the authors
Industry_manufacturing	Dummy variable equal to 1 if the industry of the firm equals <i>manufacturing</i> according to NACE Rev. 2 and 0 otherwise.	Classification by the authors
Industry_otherservice	Dummy variable equal to 1 if the industry of the firm equals <i>other services</i> according to NACE Rev. 2 and 0 otherwise.	Classification by the authors
Industry_techservice	Dummy variable equal to 1 if the industry of the firm equals <i>technical services</i> according to NACE Rev. 2 and 0 otherwise.	Classification by the authors
Firm failure	Dummy variable equal to 1 if the start-up went into insolvency, was liquidated, or was dissolved and 0 otherwise.	BvD Orbis, Unternehmensregister
<i>Investor characteristics</i>		
Exper_commodity	Dummy variable equal to 1 if the investor indicated having investment experience in commodities and 0 otherwise.	Innovestment
Exper_deposits	Dummy variable equal to 1 if the investor indicated having investment experience in deposits and/or overnight loans and 0 otherwise.	Innovestment
Exper_fixedincome	Dummy variable equal to 1 if the investor indicated having investment experience in fixed income products and 0 otherwise.	Innovestment
Exper_fundscertif	Dummy variable equal to 1 if the investor indicated having investment experience in funds and/or certificates and 0 otherwise.	Innovestment
Exper_othercorporate	Dummy variable equal to 1 if the investor indicated having experience with other asset classes that enable investment in a firm and 0 otherwise.	Innovestment
Exper_realestate	Dummy variable equal to 1 if the investor indicated having investment experience in real estate and 0 otherwise.	Innovestment

Variable	Description	Source
Exper_stocks	Dummy variable equal to 1 if the investor indicated having investment experience in corporate stocks and 0 otherwise.	Innovestment
Investor_averageinvestment	Average investment of the investor in 1,000 EUR.	Companisto, Innovestment, and calculation by the authors
Investor_bigcity	Dummy variable equal to 1 if the investor reported living in city with more than one million inhabitants and 0 otherwise.	Companisto, Innovestment, and classification by the authors
Investor_#investments	Number of investments made by the investor from the start of his or her crowdfinancing activities.	Companisto, Innovestment, and calculation by the authors
Investor_familyfriends	Dummy variable equal to 1 if the investor holds the three criteria according to Agrawal et al. (2015) and 0 otherwise.	Classification by the authors
Investor_female	Dummy variable equal to 1 if the stated name of the investor indicates a female investor and 0 otherwise.	Companisto and classification by the authors
Investor_tipo	Dummy variable equal to 1 if the investor misspelled his or her location of origin and 0 otherwise.	Companisto and classification by the authors
Investor_portfolioamount	The sum of the successful portfolio investments an investor has undertaken since its first investment in the portal in 1,000 EUR.	Companisto, Innovestment, and calculation by the authors
Region_GDPperP	Is the gross domestic product per person in the county the investor reportedly lives or the firm is located in measured in 1,000 EUR.	Statistical offices of the federal and state governments
Population_density	Measures the population per unit area where the start-up firm is located in #/1000.	Federal Statistical Office of Germany
<i>Investment characteristics</i>		
Investment_#earlier	Number of investments earlier in the day at the same campaign in #/10.	Calculation by the authors
Investment_#earlier5k	Number of investments, with investment amount of 5,000 EUR or higher, earlier in the day at the same campaign in #/10.	Calculation by the authors
Investment_5k	Dummy variable equal to 1 if the investment amount was 5,000 EUR or higher and 0 otherwise.	Companisto, Innovestment, and classification by the authors
Investment_amount	Is the amount of an individual investment in 1,000 EUR.	Companisto and Innovestment
Investment_first3days	Dummy variable equal to 1 if the investment took place in the first three days of the campaign.	Calculation by the authors

Variable	Description	Source
Investment_evening	Dummy variable equal to 1 if the investment took place between 5 P.M. and 9:59 P.M. and 0 otherwise.	Innovestment and classification by the authors
Investment_night	Dummy variable equal to 1 if the investment took place between 10 P.M. and 6:59 A.M. and 0 otherwise.	Innovestment and classification by the authors
Investment_weekend	Dummy variable equal to 1 if the investment took place on a Saturday or Sunday (Central European Time) and 0 otherwise.	Companisto, Innovestment, and classification by the authors

Web Appendix

Figure W1. Number of Venture Capital Investments.

Heat map of Germany and neighbor countries showing the location of venture capital investors (green areas). The venture capital sample covers 1,221 investments between November 6, 2011, and August 28, 2014. The green dots indicate locations of firms into which venture capitalists invested.

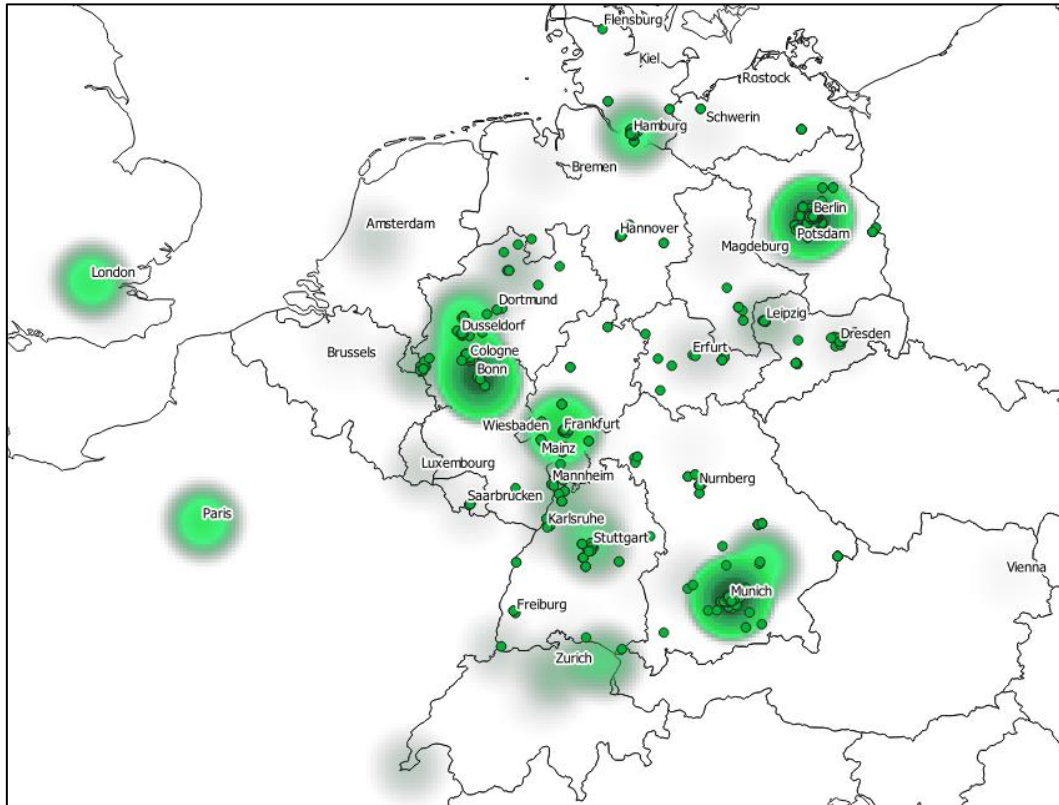


Figure W2. Number of Equity Crowdfunding Investments.

Heat map of Germany and neighbor countries showing the number of equity crowdfunding investments (blue areas). The sample covers 20,640 investment decisions between November 6, 2011, and August 28, 2014. Figure A shows the total number of investments decisions. Figure B shows the investment decisions that took place on the portal Companisto (N=18,837), and Figure C presents the location of investors that invested on Innovestment (N=1,623). The red dots indicate firm locations.

Figure A: Total number of investments

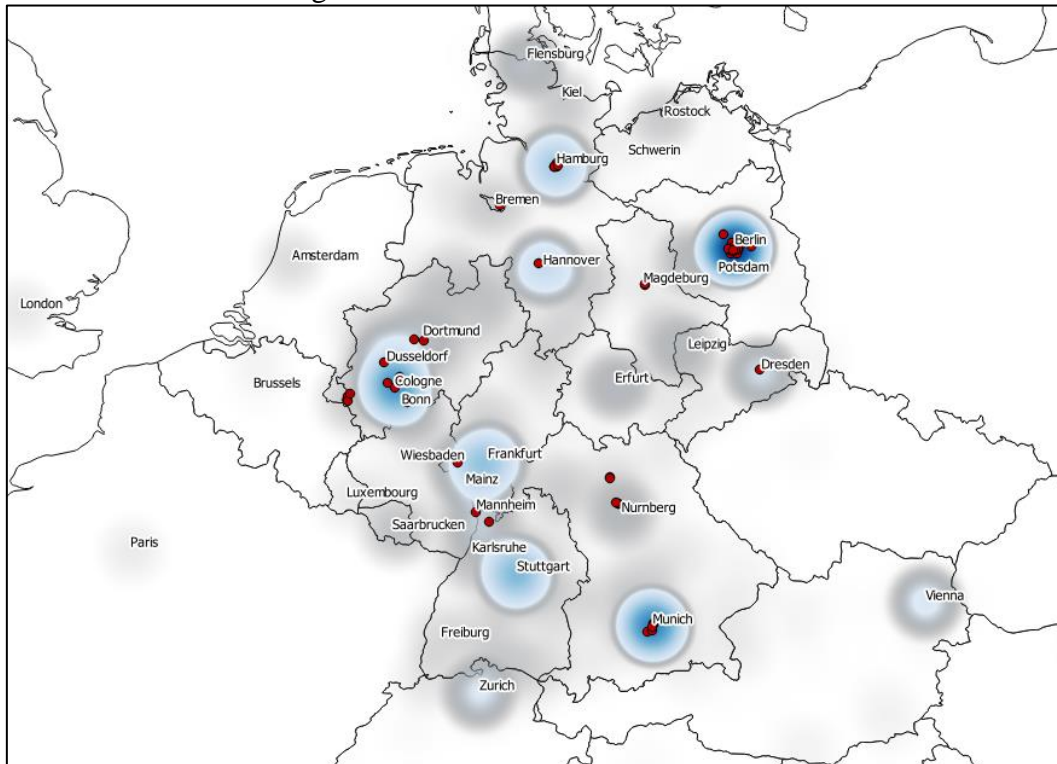


Figure B: Number of investments on Companisto

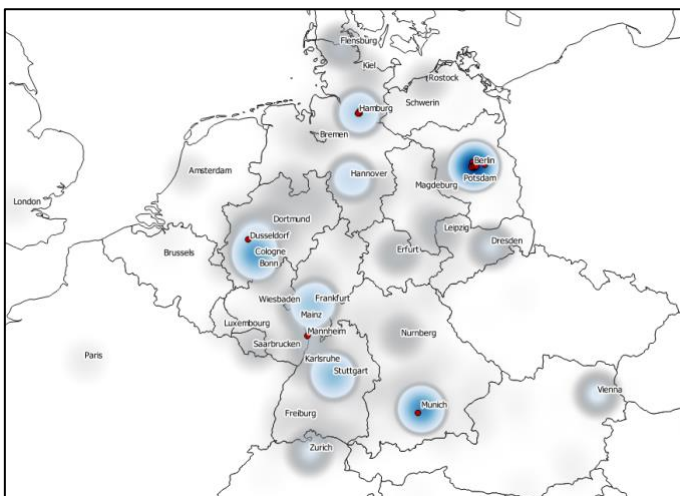


Figure C: Number of investments on Innovestment

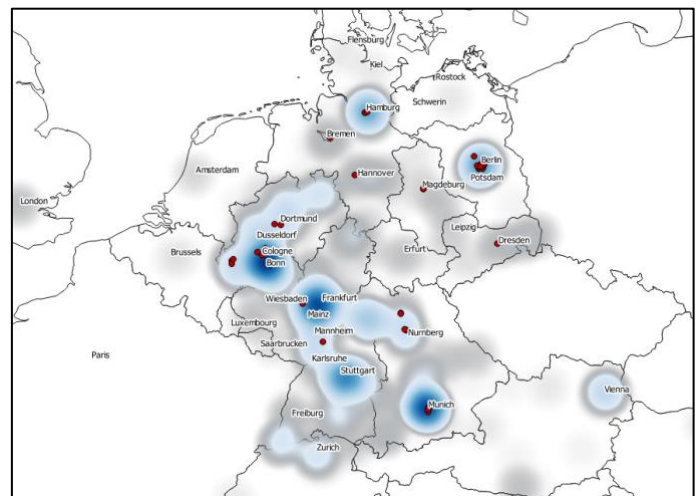


Figure W3. Investment Amounts in Equity Crowdfunding.

Heat map of Germany and neighbor countries showing investment amounts (blue areas). The sample covers 20,640 investment amounts between November 6, 2011, and August 28, 2014. Figure A presents the total number of investments amounts (N=10,762,742 EUR). Figure B shows the investment amounts on Companisto (N=6,250,590 EUR), and Figure C presents the location of investment amounts for Innovestment (N=4,512,152 EUR). The red dots indicate firm locations.

Figure A: Total investment amounts

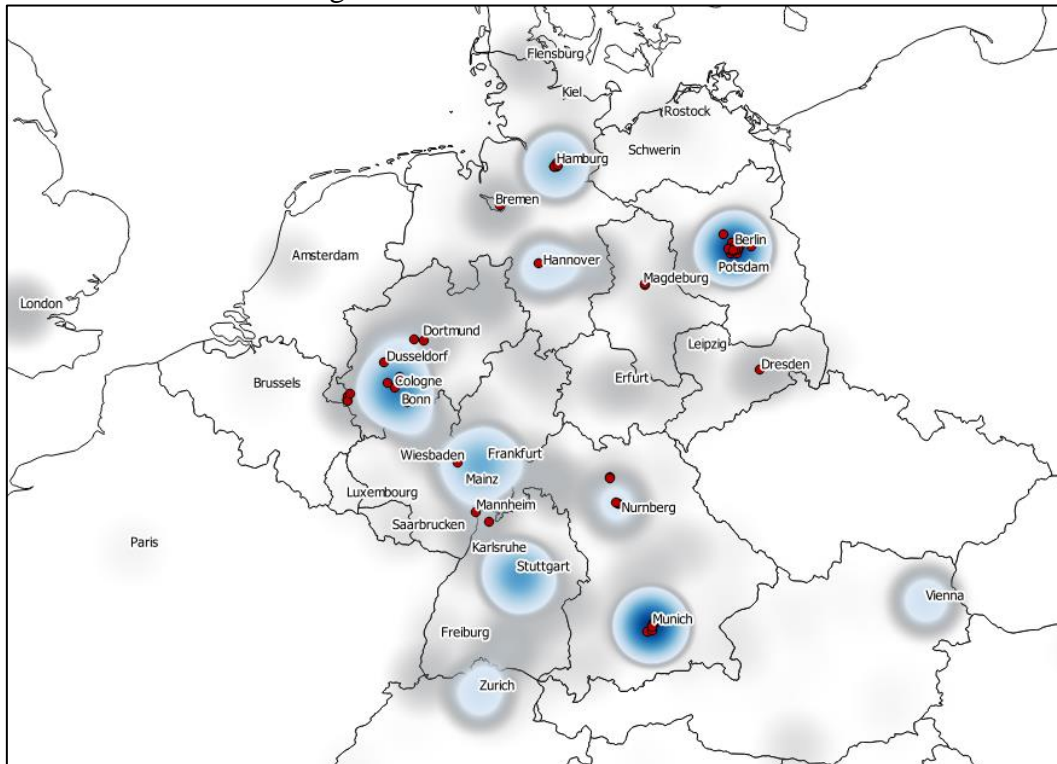


Figure B: Investment amounts on Companisto

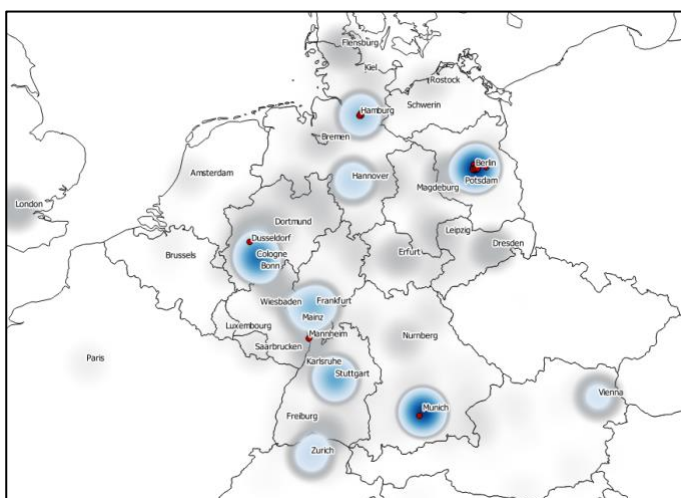


Figure C: Investment amounts on Innovestment

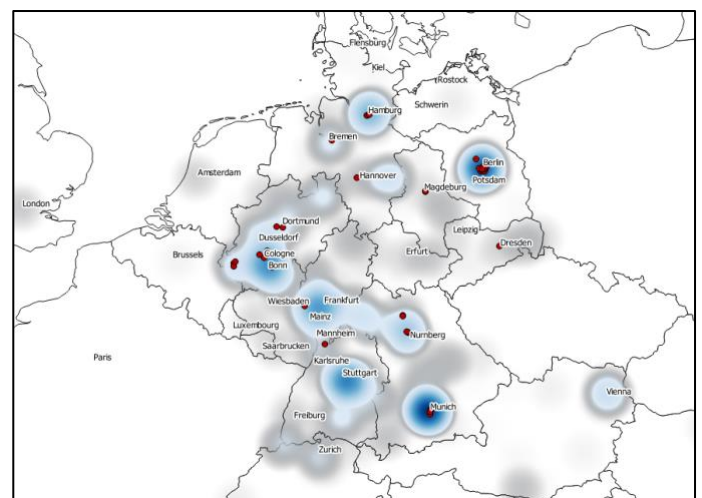


Table W1. Local Bias for Investor Sample Providing Exact Location.

Local bias for individual investments (Panel A) and investor portfolios (Panel B) in percentages. We exclude investors who did not provide their exact location. The table categorizes the local bias according to portals and the location of the investor. Furthermore, we calculate local biases by excluding family and friend investors. In line with Agrawal et al. (2015), we define investors as family and friends if (1) they invest in the focal start-up before investing in any other start-up, (2) their investment in the focal start-up is their largest investment, and (3) the investor invests in no more than three other start-ups. We report a one-sample, two-tailed t-test for the null hypothesis that local biases are zero. ***, **, and + indicate statistical significance at the 1%, 5%, and 10% level. Variables reported are defined in Appendix A.

PANEL A: Local bias individual investments								
	N	Mean	SD	Min.	25th	Median	75th	Max.
<i>By portal</i>								
Companisto	12,202	1.2**	62.7	-464.8	-7.0	0.1	12.3	99.7
German investors	11,544	1.3**	64.4	-464.8	-7.2	0.1	15.6	99.7
Foreign investors	658	-0.6	15.1	-40.1	-3.4	-0.1	2.6	80.9
Innovestment	1,623	10.6***	45.3	-283.8	-8.8	1.0	33.9	99.8
German investors	1,467	11.6***	47.0	-283.8	-8.8	1.1	39.1	99.8
Foreign investors	156	1.0	22.0	-59.9	-8.4	-0.2	11.6	67.2
<i>By country</i>								
German investors	13,011	2.4***	62.7	-464.8	-7.5	0.2	19.0	99.8
Foreign investors	814	-0.3	16.6	-59.9	-3.5	-0.1	4.4	80.9
Without family and friends	10,107	0.7	64.8	-464.8	-8.4	0.1	16.5	99.7
Companisto	8,853	-0.4	67.4	-464.8	-8.4	0.1	13.6	99.7
Innovestment	1,254	8.1***	42.1	-149.3	-8.3	0.7	27.9	99.7
Total	13,825	2.3***	61.0	-464.8	-7.3	0.1	17.1	99.8
PANEL B: Local bias investor portfolio								
	N	Mean	SD	Min.	25th	Median	75th	Max.
<i>By portal</i>								
Companisto	4,513	13.0***	46.5	-497.4	-7.6	-1.8	26.9	99.7
German investors	4,193	14.1***	47.9	-497.4	-7.6	-1.7	32.8	99.7
Foreign investors	320	-1.1	15.7	-37.7	-8.0	-3.1	5.6	68.5
Innovestment	432	18.1***	48.9	-113.6	-24.4	11.1	50.5	99.9
German investors	389	19.5***	50.6	-113.6	-25.3	15.6	62.3	99.9
Foreign investors	43	4.8	25.8	-32.4	-14.3	0.3	29.8	78.8
<i>By country</i>								
German investors	4,582	14.6***	48.1	-497.4	-7.8	-1.4	36.0	99.9
Foreign investors	363	-0.4	17.3	-37.7	-8.5	-2.7	6.1	78.8
Without family and friends	1,436	8.0***	42.5	-497.4	-7.0	-0.9	18.4	99.3
Companisto	1,248	7.6***	43.0	-497.4	-6.8	-1.2	15.2	99.3
Innovestment	188	10.8***	39.3	-87.3	-21.3	6.2	31.0	99.3
Total	4,945	13.5***	46.7	-497.4	-7.8	-1.5	30.5	99.9

Table W2. Regression Results for Investor Sample Providing Exact Location.

The table shows the results of regressions on individual investment decisions. The dependent variable is the individual investment local bias as defined in section 4.2.1. Panel A displays the results of our baseline regressions for the sample of 13,825 investments. Columns (1) and (2) show the results for the ordinary least squares regressions without adding additional firm-specific control variables to the model. Columns (3) and (4) display the results of the ordinary least squares regressions with additional firm-specific control variables. Columns (2) and (4) present the results for the sample in which we winsorize the data at the bottom 10%. All regressions include dummy variables to control for firm fixed effects at the campaign level. Next to the variables reported in Panels B–D, every regression also includes all variables from Panel A column (1). Additional controls indicate that the firm-specific control variables from Panel A columns (3) and (4) are included. Panel B reports the effect of different investor types. Panel C considers the experience of the investors. In Panel D, we test whether herding and timing have an effect on the local bias. Standard errors are clustered by investor and are reported in parentheses. ***, **, and + indicate statistical significance at the 1%, 5%, and 10% level. Variables reported are defined in Appendix A.

Panel A: Baseline regressions				
	(1)	(2) Winsorized	(3)	(4) Winsorized
Campaign_Investment	-0.428*** (0.086)	1.171*** (0.343)	-0.131 (0.093)	-0.147+ (0.087)
Campaign_fundingratio	0.008** (0.004)	-0.009*** (0.002)	0.008** (0.004)	-0.009*** (0.002)
Campaign_success	0.565*** (0.168)	0.567*** (0.168)	0.308+ (0.183)	0.093 (0.179)
Campaign_days	-0.014*** (0.002)	-0.009*** (0.002)	0.044*** (0.006)	0.051*** (0.005)
Firm_valuation	0.068*** (0.007)	0.068*** (0.007)	0.001 (0.014)	0.024+ (0.013)
Population_density	-0.115** (0.058)	-0.115** (0.058)	-0.203*** (0.038)	-0.207*** (0.035)
Industry_manufacturing	1.128*** (0.352)	-0.504*** (0.035)	0.432*** (0.076)	0.375*** (0.075)
Industry_trading	0.770*** (0.185)	-0.860** (0.341)	1.612*** (0.230)	1.328*** (0.216)
Industry_IT	0.693*** (0.062)	-0.938*** (0.354)	0.795*** (0.088)	0.684*** (0.083)
Industry_finance	0.075*** (0.017)	0.050*** (0.016)	-0.520*** (0.090)	-0.411*** (0.087)
Industry_techservice	0.178 (0.180)	-1.235*** (0.340)	-1.226*** (0.196)	0.916*** (0.132)
Industry_otherservice	0.908*** (0.174)	-0.713** (0.321)	0.421** (0.194)	0.157 (0.191)
Industry_entertainment	0.028+ (0.016)	0.027+ (0.016)	0.363*** (0.052)	0.319*** (0.050)

Funding_prev_succ_campaign			-0.003*** (0.001)	-0.003*** (0.001)
Businessplan_fleschscore			0.025*** (0.006)	0.018*** (0.005)
Businessplan_pictures			-0.033*** (0.005)	-0.028*** (0.005)
Businessplan_characters			-0.006*** (0.001)	-0.006*** (0.001)
Number_founder			-0.321*** (0.044)	-0.244*** (0.043)
Founder_startuexperience			0.037 (0.075)	-0.066 (0.073)
Number_employees			-0.026*** (0.005)	-0.025*** (0.005)
Filed_patents			0.402*** (0.064)	0.073 (0.059)
Granted_patents			-0.633*** (0.077)	-0.179*** (0.065)
Total_trademarks			-0.334*** (0.031)	-0.241*** (0.029)
Firm_legalform_minimum			0.809*** (0.121)	0.705*** (0.108)
BA_initial			-0.009 (0.016)	0.009 (0.015)
VC_initial			0.010 (0.027)	0.022 (0.027)
Intercept	-0.086 (0.215)	-0.072 (0.216)	-0.408 (0.409)	0.039 (0.391)
Firm dummies	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Adjusted R^2	0.154	0.204	0.154	0.204
Observations	13,825	13,825	13,825	13,825

PANEL B: Family, friends, and angel-like investors								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Investor_familyfriends	0.094*** (0.012)			0.093*** (0.012)	0.094*** (0.012)			0.093*** (0.012)
Investment_first3days		0.018 (0.013)		0.018 (0.013)		0.019 (0.013)		0.019 (0.013)
Investment_5k		0.071** (0.031)		0.031 (0.034)		0.071** (0.031)		0.031 (0.034)
Investment_5k x _first3days			0.143*** (0.046)	0.103+ (0.053)			0.143*** (0.046)	0.103+ (0.053)
Firm dummies	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Additional controls	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Adjusted R^2	0.158	0.154	0.154	0.159	0.158	0.154	0.154	0.159
Observations	13,825	13,825	13,825	13,825	13,825	13,825	13,825	13,825

PANEL C: Investor characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
		Innvestment	Companisto		Innvestment	Companisto
Investor_#investments	-0.003 (0.005)			-0.003 (0.005)		
Investor_portfolioamount	-0.003*** (0.001)			-0.003*** (0.001)		
Investor_averageinvestment	0.009 (0.007)			0.009 (0.007)		
Investment_amount	0.002 (0.009)			0.002 (0.009)		
Region_GDPperP	0.002*** (0.000)			0.002*** (0.000)		
Investor_bigcity	-0.127*** (0.016)			-0.127*** (0.016)		
Exper_deposits		0.066 (0.062)			0.066 (0.062)	
Exper_stocks		-0.102 (0.069)			-0.102 (0.069)	
Exper_fundscertif		-0.006 (0.072)			-0.006 (0.072)	
Exper_fixedincome		-0.034 (0.051)			-0.034 (0.051)	
Exper_commodity		-0.044 (0.044)			-0.044 (0.044)	
Exper_realestate		0.068+ (0.041)			0.068+ (0.041)	
Exper_othercorporate		0.043 (0.034)			0.043 (0.034)	
Investor_female			-0.014 (0.018)			-0.014 (0.018)
Investor_typo			0.056 (0.048)			0.056 (0.048)
Firm dummies	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Additional controls	<i>No</i>	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Adjusted R^2	0.177	0.219	0.149	0.177	0.219	0.149
Observations	12,204	1,623	12,030	12,204	1,623	12,030

PANEL D: Herding and timing										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
									Innvestment	
Investment_#earlier	-0.002 (0.003)			-0.003 (0.003)						
Investment_#earlier5k		0.008 (0.051)			0.005 (0.050)					
Investment_weekend			-0.022 (0.014)	-0.025+ (0.014)	-0.022 (0.014)		-0.028+ (0.016)			
Investment_first3days						0.018 (0.013)	0.010 (0.013)			
Investment_weekend x _first3days							0.053+ (0.029)			
Investment_evening								-0.020 (0.022)		-0.021 (0.023)
Investment_night									0.001 (0.034)	-0.007 (0.035)
Firm dummies	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Additional controls	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>
Adjusted R ²	0.154	0.154	0.154	0.154	0.154	0.154	0.154	0.214	0.214	0.214
Observations	13,825	13,825	13,825	13,825	13,825	13,825	13,825	1,623	1,623	1,623

Panel D: continued										
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
									Innovation	
Investment_#earlier	-0.002 (0.003)			-0.003 (0.003)						
Investment_#earlier5k		0.008 (0.051)			0.005 (0.050)					
Investment_weekend			-0.023+ (0.014)	-0.025+ (0.014)	-0.023+ (0.014)		-0.029+ (0.016)			
Investment_first3days						0.019 (0.013)	0.011 (0.014)			
Investment_weekend x _first3days							0.053+ (0.029)			
Investment_evening								-0.020 (0.022)		-0.021 (0.023)
Investment_night									0.001 (0.034)	-0.007 (0.035)
Firm dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.154	0.154	0.154	0.154	0.154	0.154	0.154	0.214	0.214	0.214
Observations	13,825	13,825	13,825	13,825	13,825	13,825	13,825	1,623	1,623	1,623

Table W3. Local Bias and Firm Failure for Investor Sample Providing Exact Location.

The table shows the percentage of failed firms according to the local bias for individual investments. The local bias for individual investments is defined in section 4.2.1. Positive indicates that the investment was regionally closer than the respective benchmark portfolio; negative indicates that it was farther away than the respective benchmark portfolio. We report a two-sample t-test for testing the equality of the means. ***, **, and + indicate statistical significance at the 1%, 5%, and 10% level.

	Individual investment			
	N	Mean	SD	t-Stat.
<i>By local bias</i>				
Positive (>0)	7,121	39.3	48.8	-551.5***
Negative (≤ 0)	6,704	43.9	49.6	
<i>By portal</i>				
Companisto				
<i>By local bias</i>				
Positive (>0)	6,245	39.9	49.0	-482.8***
Negative (≤ 0)	5,957	44.2	49.7	
Innovestment				
<i>By local bias</i>				
Positive (>0)	876	34.8	47.7	-271.6***
Negative (≤ 0)	747	41.4	49.3	

Table W4. Firm Failure Regression Results for Investor Sample Providing Exact Location.

The table shows the results of regressions on firm failure. Variable definitions are reported in Appendix A. The dependent variable in columns (1) and (2) is a dummy variable for whether a firm failure occurred or not and in columns (3) and (4) the duration until firm failure. Columns (1) and (2) report the results of a probit model. Coefficients reported are average marginal effects. Columns (3) and (4) report the results of a Cox proportional hazard model. Coefficients reported are hazard ratios. The variables *Industry_finance*, *Industry_techservice*, *Industry_otherservice*, *Industry_entertainment*, *filed_patents*, and *granted_patents* are not included because they predict firm failure perfectly. Standard errors are clustered by investor and are reported in parentheses. ***, **, and + indicate statistical significance at the 1%, 5%, and 10% level.

	(1) Probit	(2)	(3) Cox	(4)
Localbias	-0.036*** (0.008)		0.956 (0.032)	
Lb_investment		-0.101*** (0.008)		0.621*** (0.021)
Campaign_Innovestment	-0.138*** (0.026)	-0.130*** (0.026)	0.098*** (0.030)	0.113*** (0.032)
Campaign_fundingratio	-0.038*** (0.001)	-0.038*** (0.001)	0.830*** (0.005)	0.830*** (0.005)
Campaign_success	0.017 (0.046)	0.015 (0.045)	0.757 (0.269)	0.671 (0.228)
Campaign_days	-0.034*** (0.002)	-0.034*** (0.002)	0.820*** (0.012)	0.828*** (0.012)
Firm_valuation	0.095*** (0.009)	0.089*** (0.008)	1.579*** (0.074)	1.591*** (0.072)
Population_density	-0.049*** (0.006)	-0.045*** (0.006)	0.495*** (0.045)	0.540*** (0.046)
Industry_trading	0.170*** (0.015)	0.159*** (0.016)	2.422*** (0.272)	2.495*** (0.275)
Funding_prev_succ_campaign	0.001*** (0.000)	0.001*** (0.000)	0.987*** (0.001)	0.986*** (0.001)
Businessplan_fleschscore	0.002 (0.001)	0.003+ (0.001)	1.104*** (0.014)	1.100*** (0.014)
Businessplan_pictures	0.009*** (0.001)	0.009*** (0.001)	1.019** (0.010)	1.022** (0.010)
Businessplan_characters	0.002*** (0.000)	0.003*** (0.000)	1.019*** (0.004)	1.021*** (0.004)
Number_founder	-0.004 (0.004)	-0.002 (0.004)	1.170*** (0.025)	1.186*** (0.024)
Founder_startupexperience	0.356*** (0.014)	0.361*** (0.014)	14.099*** (1.876)	14.385*** (1.888)

Number_employees	-0.043*** (0.001)	-0.045*** (0.001)	0.848*** (0.005)	0.837*** (0.005)
Total_trademarks	-0.052*** (0.008)	-0.063*** (0.008)	0.390*** (0.036)	0.380*** (0.033)
Firm_legalform_minimum	-0.060*** (0.010)	-0.048*** (0.010)	0.840*** (0.046)	0.884** (0.048)
BA_initial	-0.041*** (0.005)	-0.035*** (0.005)	1.083*** (0.032)	1.101*** (0.033)
VC_initial	0.103*** (0.005)	0.098*** (0.005)	1.703*** (0.082)	1.656*** (0.080)
Days at risk	-	-	37,294,246	37,294,246
N_fail	-	-	5,736	5,736
Pseudo- <i>R</i> ²	0.330	0.342	0.076	0.079
Log-likelihood	-	-	-47770.341	-47627.898
P(Y=1)	41.5%	41.5%	41.5%	41.5%
Observations	13,825	13,825	13,825	13,825

Table W5. Local Bias Excluding Investors with Most Popular German Names.

Local bias for individual investments (Panel A) and investor portfolios (Panel B) in percentages. We exclude investments of investors with the 20 most popular German names. The table categorizes the local bias according to portals and the location of the investor. Furthermore, we calculate local biases by excluding family and friend investors. In line with Agrawal et al. (2015), we define investors as family and friends if (1) they invest in the focal start-up before investing in any other start-up, (2) their investment in the focal start-up is their largest investment, and (3) the investor invests in no more than three other start-ups. We report a one-sample, two-tailed t-test for the null hypothesis that local biases are zero. ***, **, and + indicate statistical significance at the 1%, 5%, and 10% level. Variables reported are defined in Appendix A.

Panel A: Local bias individual investments								
	N	Mean	SD	Min.	25th	Median	75th	Max.
<i>By portal</i>								
Companisto	14,468	0.5	54.5	-464.8	-12.9	-0.1	9.2	99.7
German Investors	13,388	0.6	56.4	-464.8	-12.9	-0.1	9.7	99.7
Foreign Investors	1,080	-0.7	18.3	-46.5	-12.5	-0.1	3.2	80.9
Innovestment	1,623	10.6***	45.3	-283.8	-8.8	1.0	33.9	99.8
German Investors	1,467	11.6***	47.0	-283.8	-8.8	1.1	39.1	99.8
Foreign Investors	156	1.0	22.0	-59.9	-8.4	-0.2	11.6	67.2
<i>By country</i>								
German Investors	14,855	1.7***	55.7	-464.8	-12.3	-0.1	11.6	99.8
Foreign Investors	1,236	-0.5	18.8	-59.9	-12.4	-0.1	3.9	80.9
Without family and friends	11,876	0.2	56.1	-464.8	-13.1	-0.2	9.9	99.7
Companisto	10,622	-0.7	57.4	-464.8	-13.4	-0.2	8.6	99.7
Innovestment	1,254	8.1***	42.1	-149.3	-8.3	0.7	27.9	99.7
Total	16,091	1.5***	53.8	-464.8	-12.3	-0.1	11.0	99.8
Panel B: Local bias investor portfolio								
	N	Mean	SD	Min.	25th	Median	75th	Max.
<i>By portal</i>								
Companisto	5,320	10.0***	43.3	-497.4	-8.6	-2.4	20.0	99.7
German investors	4,809	11.2***	45.0	-497.4	-8.5	-2.3	23.7	99.7
Foreign investors	511	-1.4+	16.4	-38.3	-10.2	-2.9	4.2	68.5
Innovestment	432	18.1***	48.9	-113.6	-24.4	11.1	50.5	99.9
German investors	389	19.5***	50.6	-113.6	-25.3	15.6	62.3	99.9
Foreign investors	43	4.8	25.8	-32.4	-14.3	0.3	29.8	78.8
<i>By country</i>								
German investors	5,198	11.8***	45.5	-497.4	-8.8	-2.0	27.3	99.9
Foreign investors	554	-0.9	17.4	-38.3	-10.3	-2.5	5.5	78.8
Without family and friends	1,759	5.2***	38.7	-497.4	-8.0	-1.5	13.4	99.3
Companisto	1,571	4.6***	38.5	-497.4	-7.8	-1.9	11.0	99.3
Innovestment	188	10.8***	39.3	-87.3	-21.3	6.2	31.0	99.3
Total	5,752	10.6***	43.8	-497.4	-8.9	-2.1	22.8	99.9

Table W6. Regression Results Excluding Investors with Most Popular German Names.

The table shows the results of regressions on individual investment decisions. We exclude investors with the 20 most popular German names. The dependent variable is the individual investment local bias as defined in section 4.2.1. Panel A displays the results of our baseline regressions for the sample of 16,091 investments. Columns (1) and (2) show the results for the ordinary least squares regressions without adding additional firm-specific control variables to the model. Columns (3) and (4) display the results of the ordinary least squares regressions with additional firm-specific control variables. Columns (2) and (4) present the results for the sample in which we winsorize the data at the bottom 10%. All regressions include dummy variables to control for firm fixed effects at the campaign level. Next to the variables reported in Panels B–D, every regression also includes all variables from Panel A column (1). Additional controls indicate that the firm-specific control variables from Panel A columns (3) and (4) are included. Panel B reports the effect of different investor types. Panel C considers the experience of the investors. In Panel D, we test whether herding and timing have an effect on the local bias. Standard errors are clustered by investor and are reported in parentheses. ***, **, and + indicate statistical significance at the 1%, 5%, and 10% level. Variables reported are defined in Appendix A.

Panel A: Baseline regressions				
	(1)	(2)	(3)	(4)
		Winsorized		Winsorized
Campaign_Innvestment	0.505*** (0.087)	0.404*** (0.080)	0.097 (0.088)	0.124 (0.080)
Campaign_fundingratio	0.000 (0.002)	-0.006*** (0.001)	0.000 (0.002)	-0.006*** (0.001)
Campaign_success	0.231 (0.178)	0.214 (0.168)	0.014 (0.181)	-0.022 (0.176)
Campaign_days	-0.063*** (0.014)	-0.053*** (0.013)	0.026*** (0.005)	0.024*** (0.004)
Firm_valuation	0.093*** (0.013)	0.092*** (0.013)	0.045*** (0.013)	0.049*** (0.012)
Population_density	-0.258*** (0.045)	-0.236*** (0.043)	-0.268*** (0.037)	-0.237*** (0.033)
Industry_manufacturing	-0.702*** (0.048)	-0.559*** (0.044)	0.156 (0.221)	0.031 (0.069)
Industry_trading	-0.402*** (0.145)	-0.277** (0.136)	0.766*** (0.230)	0.496*** (0.190)
Industry_IT	-0.351*** (0.114)	-0.271** (0.107)	0.599*** (0.197)	0.386*** (0.078)
Industry_finance	0.377*** (0.092)	0.320*** (0.083)	-0.034 (0.262)	-0.122 (0.084)
Industry_techservice	-1.209*** (0.116)	-0.851*** (0.094)	-1.404*** (0.125)	-1.224*** (0.182)
Industry_entertainment	-0.320** (0.144)	-0.251+ (0.135)	.	-0.236 (0.190)

Funding_prev_succ_campaign			-0.002*** (0.001)	-0.002** (0.001)
Businessplan_fleshscore			0.016*** (0.006)	0.010** (0.005)
Businessplan_pictures			-0.016*** (0.005)	-0.013*** (0.004)
Businessplan_characters			-0.007*** (0.001)	-0.006*** (0.001)
Number_founder			-0.120*** (0.043)	-0.090** (0.040)
Founder_startuexperience			-0.113 (0.071)	-0.115+ (0.067)
Number_employees			-0.016*** (0.005)	-0.015*** (0.004)
Filed_patents			-0.070 (0.060)	-0.176*** (0.056)
Granted_patents			0.139** (0.069)	0.185*** (0.059)
Total_trademarks			-0.168*** (0.031)	-0.106*** (0.028)
Firm_legalform_minimum			0.648*** (0.121)	0.559*** (0.105)
BA_initial			-0.005 (0.017)	0.004 (0.016)
VC_initial			0.026 (0.025)	0.023 (0.022)
Intercept	0.859*** (0.147)	0.787*** (0.133)	0.089 (0.283)	0.377 (0.384)
Firm dummies	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Adjusted R^2	0.065	0.079	0.065	0.079
Observations	16,091	16,091	16,091	16,091

Panel B: Family, friends, and angel-like investors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Investor_familyfriends	0.062*** (0.009)			0.062*** (0.009)	0.062*** (0.009)			0.062*** (0.009)
Investment_first3days		-0.008 (0.011)		-0.008 (0.011)		-0.007 (0.011)		-0.008 (0.011)
Investment_5k		0.045 (0.029)		0.009 (0.030)		0.045 (0.029)		0.009 (0.030)
Investment_5k x first3days			0.122** (0.050)	0.115** (0.053)			0.122** (0.050)	0.115** (0.053)
Firm dummies	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Additional controls	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Adjusted <i>R</i> ²	0.068	0.065	0.065	0.068	0.067	0.065	0.065	0.068
Observations	16,091	16,091	16,091	16,091	16,091	16,091	16,091	16,091

Panel C: Investor characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
		Innvestment	Companisto		Innvestment	Companisto
Investor_#investments	-0.001 (0.006)			-0.001 (0.006)		
Investor_portfolioamount	-0.002*** (0.001)			-0.002*** (0.001)		
Investor_averageinvestment	0.013+ (0.007)			0.013+ (0.007)		
Investment_amount	-0.002 (0.007)			-0.002 (0.007)		
Region_GDPperP	-0.001*** (0.000)			-0.001*** (0.000)		
Investor_bigcity	-0.040*** (0.012)			-0.040*** (0.012)		
Exper_deposits		0.066 (0.062)			0.066 (0.062)	
Exper_stocks		-0.102 (0.069)			-0.102 (0.069)	
Exper_fundscertif		-0.006 (0.072)			-0.006 (0.072)	
Exper_fixedincome		-0.034 (0.051)			-0.034 (0.051)	
Exper_commodity		-0.044 (0.044)			-0.044 (0.044)	
Exper_realestate		0.068+ (0.041)			0.068+ (0.041)	
Exper_othercorporate		0.043 (0.034)			0.043 (0.034)	
Investor_female			-0.005 (0.013)			-0.005 (0.013)
Investor_typo			0.031 (0.041)			0.030 (0.041)
Firm dummies	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Additional controls	<i>No</i>	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Adjusted R^2	0.072	0.219	0.052	0.072	0.219	0.052
Observations	13,555	1,623	14,225	13,555	1,623	14,225

Panel D: Herding and timing with fixed effects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
									Innvestment	
Investment_#earlier	-0.002 (0.002)			-0.002 (0.002)						
Investment_#earlier5k		0.006 (0.039)			0.002 (0.039)					
Investment_weekend			-0.023+ (0.012)	-0.025** (0.012)	-0.023+ (0.012)		-0.030** (0.014)			
Investment_first3days						-0.008 (0.011)	-0.015 (0.011)			
Investment_weekend x _first3days							0.040 (0.026)			
Investment_evening								-0.020 (0.022)		-0.021 (0.023)
Investment_night									0.001 (0.034)	-0.007 (0.035)
Firm dummies	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Additional controls	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>
Adjusted R ²	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.214	0.214	0.214
Observations	16,091	16,091	16,091	16,091	16,091	16,091	16,091	1,623	1,623	1,623

PANEL D: continued

	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
									Innovation	
Investment_#earlier	-0.002 (0.002)			-0.002 (0.002)						
Investment_#earlier5k		0.006 (0.039)			0.003 (0.039)					
Investment_weekend			-0.023+ (0.012)	-0.025** (0.012)	-0.023+ (0.012)		-0.031** (0.014)			
Investment_first3days						-0.007 (0.011)	-0.014 (0.012)			
Investment_weekend x _first3days							0.040 (0.027)			
Investment_evening								-0.020 (0.022)		-0.021 (0.023)
Investment_night									0.001 (0.034)	-0.007 (0.035)
Firm dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.214	0.214	0.214
Observations	16,091	16,091	16,091	16,091	16,091	16,091	16,091	1,623	1,623	1,623

Table W7. Local Bias and Firm Failure Excluding Investors with Most Popular German Names.

The table shows the percentage of failed firms according to the local bias for individual investments. The local bias for individual investments is defined in section 4.2.1. Positive indicates that the investment was regionally closer than the respective benchmark portfolio; negative indicates that it was farther away than the respective benchmark portfolio. We report a two-sample t-test for testing the equality of the means. ***, **, and + indicate statistical significance at the 1%, 5%, and 10% level.

	Individual investment			
	N	Mean	SD	t-Stat.
<i>By local bias</i>				
Positive (>0)	7,775	37.3	48.4	236.0**
Negative (≤ 0)	8,316	35.5	47.9	
<i>By portal</i>				
Companisto				
<i>By local bias</i>				
Positive (>0)	6,899	37.6	48.5	335.7***
Negative (≤ 0)	7,569	35.0	47.7	
Innovestment				
<i>By local bias</i>				
Positive (>0)	876	34.8	47.7	-271.6***
Negative (≤ 0)	747	41.4	49.3	

Table W8. Firm Failure Regression Results for Investor Sample Excluding Popular Names.

The table shows the results of regressions on firm failure. Variable definitions are reported in Appendix A. The dependent variable in columns (1) and (2) is a dummy variable for whether a firm failure occurred or not and in columns (3) and (4) the duration until firm failure. Columns (1) and (2) report the results of a probit model. Coefficients reported are average marginal effects. Columns (3) and (4) report the results of a Cox proportional hazard model. Coefficients reported are hazard ratios. The variables *Industry_finance*, *Industry_techservice*, *Industry_otherservice*, *Industry_entertainment*, *filed_patents*, and *granted_patents* are not included because they predict firm failure perfectly. Standard errors are clustered by investor and are reported in parentheses. ***, **, and + indicate statistical significance at the 1%, 5%, and 10% level.

	(1)	(2)	(1)	(2)
	Probit		Cox	
Localbias	-0.004 (0.007)		0.970 (0.029)	
Lb_investment		-0.042*** (0.008)		0.706*** (0.029)
Campaign_Innovestment	-0.062*** (0.023)	-0.058** (0.023)	0.585*** (0.083)	0.608*** (0.083)
Campaign_fundingratio	-0.044*** (0.001)	-0.044*** (0.001)	0.802*** (0.005)	0.801*** (0.005)
Campaign_success	-0.004 (0.045)	-0.006 (0.045)	0.906 (0.266)	0.845 (0.243)
Campaign_days	-0.026*** (0.001)	-0.026*** (0.001)	0.929*** (0.006)	0.928*** (0.006)
Firm_valuation	0.056*** (0.007)	0.054*** (0.007)	1.314*** (0.050)	1.325*** (0.049)
Population_density	-0.001 (0.005)	0.001 (0.005)	1.144** (0.067)	1.164*** (0.064)
Industry_trading	0.254*** (0.014)	0.255*** (0.014)	5.891*** (0.422)	6.177*** (0.440)
Funding_prev_succ_campaign	0.000 (0.000)	0.000 (0.000)	0.990*** (0.001)	0.989*** (0.001)
Businessplan_fleshscore	-0.005*** (0.001)	-0.005*** (0.001)	0.999 (0.005)	0.996 (0.005)
Businessplan_pictures	0.016*** (0.001)	0.016*** (0.001)	1.081*** (0.007)	1.086*** (0.007)
Businessplan_characters	0.002*** (0.000)	0.002*** (0.000)	1.016*** (0.003)	1.017*** (0.003)
Number_founder	-0.013*** (0.003)	-0.013*** (0.003)	1.031 (0.020)	1.042** (0.020)
Founder_startupexperience	0.298*** (0.012)	0.299*** (0.012)	5.138*** (0.430)	5.390*** (0.455)

Number_employees	-0.042*** (0.001)	-0.043*** (0.001)	0.868*** (0.005)	0.857*** (0.005)
Total_trademarks	0.057*** (0.005)	0.056*** (0.005)	1.108** (0.052)	1.088+ (0.050)
Firm_legalform_minimum	-0.041*** (0.010)	-0.038*** (0.010)	0.900** (0.044)	0.945 (0.046)
BA_initial	-0.086*** (0.005)	-0.085*** (0.005)	0.854*** (0.023)	0.860*** (0.023)
VC_initial	0.108*** (0.004)	0.107*** (0.004)	1.174*** (0.024)	1.159*** (0.024)
Days at risk	-	-	42,444,306	42,444,306
Number of failures	-	-	5,857	5,857
Pseudo- <i>R</i> ²	0.342	0.344	0.064	0.065
Log-likelihood	-	-	-50237.947	-50169.621
P(Y=1)	36.4%	36.4%	36.4%	36.4%
Observations	16,091	16,091	16,091	16,091

Table W9. Local Bias for Only German Investor Sample.

Local bias for individual investments (Panel A) and investor portfolios (Panel B) in percentages. We exclude investments of international investors. The table categorizes the local bias according to portals and the location of the investor. Furthermore, we calculate local biases by excluding family and friend investors. In line with Agrawal et al. (2015), we define investors as family and friends if (1) they invest in the focal start-up before investing in any other start-up, (2) their investment in the focal start-up is their largest investment, and (3) the investor invests in no more than three other start-ups. We report a one-sample, two-tailed t-test for the null hypothesis that local biases are zero. ***, **, and + indicate statistical significance at the 1%, 5%, and 10% level. Variables reported are defined in Appendix A.

Panel A: Local bias individual investments								
	N	Mean	SD	Min.	25th	Median	75th	Max.
<i>By portal</i>								
Companisto	17,431	0.5	55.2	-464.8	-13.1	-0.2	9.2	99.7
Innovestment	1,467	11.6***	47.0	-283.8	-8.8	1.1	39.1	99.8
Without family and friends	14,682	0.0	56.5	-464.8	-13.4	-0.2	9.5	99.7
Companisto	13,545	-0.7	57.4	-464.8	-13.5	-0.2	8.2	99.7
Innovestment	1,137	9.0***	43.6	-149.3	-8.3	0.8	30.0	99.7
Total	18,898	1.3***	54.7	-464.8	-12.7	-0.1	10.8	99.8

PANEL B: Local bias investor portfolio								
	N	Mean	SD	Min.	25th	Median	75th	Max.
<i>By portal</i>								
Companisto	5,559	10.7***	43.8	-497.4	-8.4	-2.4	21.6	99.7
Innovestment	389	19.5***	50.6	-113.6	-25.3	15.6	62.3	99.9
Without family and friends	1,942	5.9***	38.0	-497.4	-7.8	-1.4	13.9	99.3
Companisto	1,770	5.3***	37.7	-497.4	-7.5	-1.7	11.5	99.3
Innovestment	172	12.0***	40.5	-87.3	-21.3	7.7	33.6	99.3
Total	5,948	11.3***	44.3	-497.4	-8.6	-2.2	24.9	99.9

Table W10. Regression Results for Only German Investor Sample.

The table shows the results of regressions on individual investment decisions. We exclude international investors. The dependent variable is the individual investment local bias as defined in section 4.2.1. Panel A displays the results of our baseline regressions for the sample of 18,898 investments. Columns (1) and (2) show the results for the ordinary least squares regressions without adding additional firm-specific control variables to the model. Columns (3) and (4) display the results of the ordinary least squares regressions with additional firm-specific control variables. Columns (2) and (4) present the results for the sample in which we winsorize the data at the bottom 10%. All regressions include dummy variables to control for firm fixed effects at the campaign level. Next to the variables reported in Panels B–D, every regression also includes all variables from Panel A column (1). Additional controls indicate that the firm-specific control variables from Panel A columns (3) and (4) are included. Panel B reports the effect of different investor types. Panel C considers the experience of the investors. In Panel D, we test whether herding and timing have an effect on the local bias. Standard errors are clustered by investor and are reported in parentheses. ***, **, and + indicate statistical significance at the 1%, 5%, and 10% level. Variables reported are defined in Appendix A.

Panel A: Baseline regressions				
	(1)	(2) Winsorized	(3)	(4) Winsorized
Campaign_Investment	0.490*** (0.089)	0.384*** (0.083)	0.616*** (0.090)	0.563*** (0.086)
Campaign_fundingratio	0.001 (0.002)	-0.006*** (0.001)	0.001 (0.002)	-0.006*** (0.001)
Campaign_success	0.237 (0.196)	0.222 (0.187)	-0.187 (0.222)	-0.190 (0.214)
Campaign_days	-0.062*** (0.016)	-0.053*** (0.015)	-0.060*** (0.010)	-0.049*** (0.009)
Firm_valuation	0.100*** (0.010)	0.102*** (0.010)	0.078*** (0.013)	0.077*** (0.012)
Population_density	-0.274*** (0.042)	-0.258*** (0.040)	-0.232*** (0.046)	-0.211*** (0.043)
Industry_manufacturing	-0.419** (0.209)	-0.590*** (0.032)	-0.022 (0.241)	0.118 (0.238)
Industry_trading	-0.075 (0.293)	-0.257+ (0.146)	0.419+ (0.251)	0.441+ (0.241)
Industry_IT	-0.102 (0.231)	-0.334*** (0.097)	0.639** (0.253)	0.664*** (0.249)
Industry_finance	0.670*** (0.187)	0.322*** (0.095)	1.098*** (0.350)	1.078*** (0.349)
Industry_techservice	-0.377 (0.275)	-0.551*** (0.111)	0.789*** (0.242)	0.744*** (0.239)
Industry_otherservice		-0.226 (0.202)		

Industry_entertainment	0.281 (0.212)	-0.009 (0.017)	0.728*** (0.273)	0.740*** (0.272)
Funding_prev_succ_campaign			0.005*** (0.001)	0.005*** (0.001)
Businessplan_fleschscore			0.022*** (0.007)	0.015** (0.006)
Businessplan_pictures			0.006+ (0.003)	0.005+ (0.003)
Businessplan_characters			-0.007*** (0.001)	-0.006*** (0.001)
Number_founder			0.048 (0.043)	0.052 (0.042)
Founder_startupexperience			-0.075 (0.081)	-0.087 (0.078)
Number_employees			0.006 (0.005)	0.002 (0.004)
Filed_patents			-0.017 (0.058)	-0.139** (0.054)
Granted_patents			0.343*** (0.077)	0.371*** (0.067)
Total_trademarks			-0.038 (0.047)	0.005 (0.045)
Firm_legalform_minimum			0.632*** (0.107)	0.555*** (0.100)
BA_initial			-0.002 (0.015)	0.009 (0.014)
VC_initial			0.011 (0.024)	0.011 (0.021)
Intercept	0.600*** (0.228)	0.847*** (0.121)	-1.155*** (0.336)	-0.900*** (0.312)
Firm dummies	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Adjusted R^2	0.065	0.078	0.065	0.078
Observations	18,898	18,898	18,898	18,898

PANEL B: Family, friends, and angel-like investors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Investor_familyfriends	0.071*** (0.009)			0.071*** (0.009)	0.071*** (0.009)			0.071*** (0.009)
Investment_first3days		-0.003 (0.011)		-0.004 (0.011)		-0.003 (0.011)		-0.004 (0.011)
Investment_5k		0.052+ (0.028)		0.007 (0.030)		0.052+ (0.028)		0.007 (0.030)
Investment_5k x _first3days			0.145*** (0.046)	0.140*** (0.050)			0.146*** (0.046)	0.140*** (0.050)
Firm dummies	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Additional controls	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Adjusted R^2	0.067	0.065	0.065	0.068	0.067	0.065	0.065	0.068
Observations	18,898	18,898	18,898	18,898	18,898	18,898	18,898	18,898

PANEL C: Investor characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
		Innvestment	Companisto		Innvestment	Companisto
Investor_#investments	-0.001 (0.005)			-0.001 (0.005)		
Investor_portfolioamount	-0.003*** (0.001)			-0.003*** (0.001)		
Investor_averageinvestment	0.010+ (0.006)			0.010+ (0.006)		
Investment_amount	0.002 (0.006)			0.002 (0.006)		
Region_GDPperP	-0.001*** (0.000)			-0.001*** (0.000)		
Investor_bigcity	-0.034*** (0.011)			-0.034*** (0.011)		
Exper_deposits		0.081 (0.071)			0.081 (0.071)	
Exper_stocks		-0.111 (0.074)			-0.111 (0.074)	
Exper_fundscertif		-0.012 (0.077)			-0.012 (0.077)	
Exper_fixedincome		-0.030 (0.054)			-0.030 (0.054)	
Exper_commodity		-0.041 (0.048)			-0.041 (0.048)	
Exper_realestate		0.068 (0.046)			0.068 (0.046)	
Exper_othercorporate		0.031 (0.038)			0.031 (0.038)	
Investor_female			0.001 (0.014)			0.001 (0.014)
Investor_typo			0.058 (0.050)			0.058 (0.050)
Firm dummies	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Additional controls	<i>No</i>	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Adjusted R^2	0.068	0.213	0.054	0.068	0.213	0.054
Observations	17,362	1,467	17,213	17,362	1,467	17,213

PANEL D: Herding and timing										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
									Innvestment	
Investment_#earlier	-0.002 (0.002)			-0.002 (0.002)						
Investment_#earlier5k		0.007 (0.038)			0.002 (0.038)					
Investment_weekend			-0.025** (0.011)	-0.027** (0.011)	-0.025** (0.011)		-0.030** (0.012)			
Investment_first3days						-0.003 (0.011)	-0.010 (0.011)			
Investment_weekend x _first3days							0.030 (0.024)			
Investment_evening								-0.018 (0.024)		-0.019 (0.025)
Investment_night									0.000 (0.037)	-0.007 (0.038)
Firm dummies	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Additional controls	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>
Adjusted R ²	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.209	0.209	0.208
Observations	18,898	18,898	18,898	18,898	18,898	18,898	18,898	1,467	1,467	1,467

Panel D continued: Herding and timing

	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
									Innvestment	
Investment_#earlier	-0.002 (0.002)			-0.002 (0.002)						
Investment_#earlier5k		0.007 (0.038)			0.003 (0.038)					
Investment_weekend			-0.025** (0.011)	-0.027** (0.011)	-0.025** (0.011)		-0.030** (0.012)			
Investment_first3days						-0.003 (0.011)	-0.010 (0.011)			
Investment_weekend x _first3days							0.030 (0.024)			
Investment_evening								-0.018 (0.024)		-0.019 (0.025)
Investment_night									0.000 (0.037)	-0.007 (0.038)
Firm dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.209	0.209	0.208
Observations	18,898	18,898	18,898	18,898	18,898	18,898	18,898	1,467	1,467	1,467

Table W11. Local Bias and Firm Failure for Only German Investor Sample.

The table shows the percentage of failed firms according to the local bias for individual investments. The local bias for individual investments is defined in section 4.2.1. Positive indicates that the investment was regionally closer than the respective benchmark portfolio; negative indicates that it was farther away than the respective benchmark portfolio. We report a two-sample t-test for testing the equality of the means. ***, **, and + indicate statistical significance at the 1%, 5%, and 10% level.

	Individual investment				Investor base			
	N	Mean	SD	t-Stat.	N	Mean	SD	t-Stat.
<i>By local bias</i>								
Positive (>0)	9,081	37.5	48.4	248.4**	39	38.5	49.3	-62.4
Negative (≤ 0)	9,817	35.8	47.9		35	45.7	50.5	
<i>By portal</i>								
Companisto								
<i>By local bias</i>								
Positive (>0)	8,278	37.7	48.5	353.8***	10	40.0	51.6	-25.2
Negative (≤ 0)	9,153	35.2	47.7		20	45.0	51.0	
Innovestment								
<i>By local bias</i>								
Positive (>0)	803	35.0	47.7	-352.2***	29	37.9	49.4	-54.8
Negative (≤ 0)	664	44.0	49.7		15	46.7	51.6	

Table W12. Firm Failure Regression Results for Only German Investor Sample.

The table shows the results of regressions on firm failure. Variable definitions are reported in Appendix A. The dependent variable in columns (1) and (2) is a dummy variable for whether a firm failure occurred or not and in columns (3) and (4) the duration until firm failure. Columns (1) and (2) report the results of a probit model. Coefficients reported are average marginal effects. Columns (3) and (4) report the results of a Cox proportional hazard model. Coefficients reported are hazard ratios. The variables *Industry_finance*, *Industry_techservice*, *Industry_otherservice*, *Industry_entertainment*, *filed_patents*, and *granted_patents* are not included because they predict firm failure perfectly. Standard errors are clustered by investor and are reported in parentheses. ***, **, and + indicate statistical significance at the 1%, 5%, and 10% level.

	(1)	(2)	(1)	(2)
	Probit		Cox	
Localbias	-0.007 (0.007)		0.961 (0.028)	
Lb_investment		-0.048*** (0.007)		0.685*** (0.027)
Campaign_Innovestment	-0.075*** (0.024)	-0.071*** (0.024)	0.464*** (0.076)	0.492*** (0.076)
Campaign_fundingratio	-0.037*** (0.001)	-0.037*** (0.001)	0.829*** (0.004)	0.828*** (0.004)
Campaign_success	-0.051 (0.046)	-0.054 (0.045)	0.692 (0.227)	0.650 (0.205)
Campaign_days	-0.029*** (0.001)	-0.029*** (0.001)	0.914*** (0.006)	0.913*** (0.006)
Firm_valuation	0.070*** (0.007)	0.067*** (0.007)	1.380*** (0.052)	1.392*** (0.051)
Population_density	-0.008 (0.005)	-0.006 (0.005)	1.049 (0.066)	1.008 (0.063)
Industry_trading	0.259*** (0.014)	0.258*** (0.014)	6.137*** (0.444)	6.453*** (0.462)
Funding_prev_succ_campaign	0.000 (0.000)	0.000 (0.000)	0.989*** (0.001)	0.989*** (0.001)
Businessplan_fleshscore	-0.007*** (0.001)	-0.007*** (0.001)	0.996 (0.005)	0.992 (0.005)
Businessplan_pictures	0.019*** (0.001)	0.019*** (0.001)	1.097*** (0.008)	1.102*** (0.008)
Businessplan_characters	0.019*** (0.001)	0.019*** (0.001)	1.012*** (0.004)	1.013*** (0.003)
Number_founder	-0.005 (0.003)	-0.005 (0.003)	1.049*** (0.018)	1.064*** (0.018)
Founder_startupexperience	0.307*** (0.012)	0.308*** (0.011)	5.964*** (0.533)	6.268*** (0.551)

Number_employees	-0.044*** (0.001)	-0.044*** (0.001)	0.867*** (0.005)	0.854*** (0.006)
Total_trademarks	0.049*** (0.005)	0.047*** (0.005)	1.062 (0.053)	1.043 (0.050)
Firm_legalform_minimum	-0.040*** (0.010)	-0.036*** (0.010)	0.892** (0.041)	0.945 (0.043)
BA_initial	-0.085*** (0.005)	-0.084*** (0.005)	0.856*** (0.023)	0.863*** (0.023)
VC_initial	0.109*** (0.004)	0.107*** (0.004)	1.147*** (0.024)	1.129*** (0.023)
Days at risk	-	-	49,730,609	49,730,609
Number of failures	-	-	6,915	6,915
Pseudo R^2	0.353	0.356	0.065	0.067
Log-likelihood	-	-	-60304.374	-60209.596
P(Y=1)	36.6%	36.6%	36.6%	36.6%
Observations	18,898	18,898	18,898	18,898