With a Little Help from My Family: Informal Startup Financing*

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March 2025

Abstract

Using a unique dataset of Norwegian startups and their investors, we analyze the characteristics of informal financing—investments made by entrepreneurs' family members. Consistent with theory, informal investments yield lower returns and are linked to reduced startup risk-taking compared to external financing. However, our instrumental variable analysis attenuates these effects, suggesting that the observed risk profile may stem from either inferior investors' selection or her altruistic motives. Reduced risk-taking is driven primarily by wealthy informal investors, lending further support to the altruism hypothesis. Overall, our findings shed new light on an important yet understudied source of startup financing and its implications for entrepreneurial behavior.

Keywords: early-stage financing, informal financing, risk-taking behavior, entrepreneurship
JEL Codes: D14, G40, G50, G51, G53, L26.

*We thank Shai Bernstein, Lauren Cohen, Bill Kerr, Tom Meling (discussant), Will Mullins, Krishna Palepu, David T. Robinson, Rick Townsend, Margarita Tsoutsoura, seminar participants at ESMT Berlin and Harvard Business School (A&M Unit, E&M Unit) and participants of the Workshop on Entrepreneurial Finance and Innovation (WEFI) and Workshop on Behavioral Perspectives on Family Firms for their helpful comments. We are grateful to Norwegian Tax Authorities for granting us data access. Author emails: bbaik@hbs.edu (Baik), johan.karlsen@nhh.no (Karlsen), k.kisseleva@fs.de (Kisseleva)

1 Introduction

We investigate the role and returns of informal financing on startups. Informal financing is provided by individuals who have personal relationships with the founders (such as family and friends), and 3.8% of US startups receive such financing. This is substantially more common than venture capital (VC) investments (0.5%) (Cosgrove et al., 2023; Nanda and Phillips, 2023; Puri and Zarutskie, 2012). Robb and Robinson (2014) show that among the startups who use family equity the magnitude of informal equity is roughly the same as that of owner equity and many times larger than the magnitude of owner debt.

In addition to the economic magnitude, informal investors also yield different economic predictions than institutional investors or other sophisticated individual investors (e.g., angel investors) that invest in startups. First, informal investors are thought to require lower returns from the founders, potentially due to altruistic motives. In an interview with Forbes, Ben Lipson, the founder of SportsTradex, shares his experience of receiving investments from his family and friends: "It is often quicker and easier than trying to attract angel investors or institutional money. Almost by definition, F&F [Family and Friends] investors trust the founders implicitly." (Forbes, 2015). Second, despite the lower required returns, informal financing is often less preferred than institutional or angel financing, because of the shadow costs when the startup fails, and therefore the reduced risk-taking behavior demonstrated by these firms (Lee and Persson, 2016). Overall, the existing predictions on financing innovative firms may not be applicable for informal financing.

Although informal investments are prevalent in the economy and provide an interesting set of economic predictions, empirically not much is known about these investments and their impact on the startup firms that receive them, mainly due to lack of available data. For example, it is challenging to identify family investments in commercial datasets because they are rarely disclosed, not to mention their returns. In this paper, we overcome this challenge and empirically test the theoretical predictions of informal financing,

by exploiting a unique dataset that covers Norwegian startup firms. This data contains not only financial statement information of the startups, but also rich information on their shareholders. Specifically, the data provides information on individual's personal equity investments (in both public and private firms), wealth, marital status, address, her family members and much more. This enables us to (i) identify informal investments, and (ii) test the predictions not only at the startup firm level, but also at the investment level.

One possible concern with our approach is that the firms that receive informal financing may be family businesses that could have substantially different motivations for growth (Bertrand and Schoar, 2006). To address the concern, we emphasize that we restrict our firms to a set of firms that have high innovation potential that are likely to seek other sources of early-stage financing, such as angel and VC investments. Following the filters developed by Kisseleva et al. (2025) and Guzman and Stern (2015), we restrict our sample to limited liability firms with English company names, firms that are located in one of the four regional innovation hubs in Norway, and firms with at least one non-executive board members live in an area outside of the company's headquarters.[1] By doing so, our assumption is that all firms in our sample (regardless of receiving informal financing) have similar growth and innovative aspirations (i.e., the founders hope to grow quickly and exit at some point), regardless of receiving informal financing.

Our empirical analyses are designed to test the following predictions: (i) informal investments have lower (even negative) required returns; and (ii) firms that receive informal investments take less risks compared to firms that do not. A theoretical model from Lee and Persson (2016) predicts that informal financing has lower returns than formal financing, possibly due to altruistic motives. To test the first prediction, we first examine the investor-level returns to the startup investments. Specifically, we test whether an indi-

[1] Kisseleva et al. (2025) link these flags to later firm outcomes. Each flag, both on its own and in combination with the others, is highly predictive of a firm's obtaining a patent, obtaining later-stage equity financing, achieving an exit for investors, and having higher 4-year revenue growth. Even more importantly, our ex ante innovation sample—that is, firms with any two flags—received over 90% of the total equity capital invested in all businesses in Norway in our sample period.

vidual investor's investments in startups founded by his/her family ultimately results in lower returns, compared to other investments. To test the second prediction, we examine whether startups that receives informal financing show evidence of reduced risk-taking, in terms of ultimate startup outcomes, financing, and financial performance.

It is important to emphasize the significance of selection in testing our predictions. As mentioned above, informal financing is predicted to be less preferred than external investments, and therefore entrepreneurs may seek informal financing when the startup is low quality. Conversely, if the startup receives financing from both informal and external investors, the reduced information asymmetry story could be driving the investment decision. We test these two mechanisms by separately identifying firms that receive financing solely from informal investors, and firms that receive investments from both types of investors.[2]

We first provide some stylized facts on the characteristics of informal investments. A number of interesting insights arise from this exercise. First, many informal investments are made at much earlier (mean 0.8 years since startup incorporation) compared to external investments, which on average are made 2.5 years since startup inception, and have lower realized returns and longer holding periods. These two statistics are consistent with the altruism hypothesis, as informal investors take more risk by investing in the startup earlier but resulting in lower returns. Further, only 49% of these investors have above-median wealth (compared to 55.4% for external investors), which is consistent with our conjecture that informal investors are less likely to be wealthy investors that invest in multiple startups. Second, startups that do receive informal financing at some point in our sample are smaller in size for the first five years (in terms of revenue and total assets), incur less expenses, and are more profitable.

In our initial set of regressions, we investigate whether informal investments are as-

[2]For brevity, we use 'informal firm', 'external firm', and 'informal $\times$ external firm' to indicate startups that receive financing from informal investors only, external investors only, and both types of investors, respectively.

sociated with lower returns than formal investments by external investors. The first return metric, total value to paid-in capital (TVPI), measures the realized investment returns, where investors buy and sell (or liquidate) their equity shares. Our second metric, monthly internal rate of return (IRR), takes the holding period into consideration. Consistent with our prediction, informal investments are associated with significantly lower (76.3%p) TVPI (approximately 38% of the unconditional mean) and 7.7%p lower IRRs than external investments into startup firms. The results are slightly weaker when we test for unrealized returns.

We then analyze whether informal firms have different types of financing and exit outcomes, which further illuminates our understanding of the return characteristics of informal investments. Specifically, we document that informal firms are less likely to receive any forms of institutional financing, while informal $\times$ external firms demonstrate similar levels compared to external firms, if not higher. In terms of ultimate startup outcomes, we analyze and find that informal firms are associated with the following long-term outcomes: higher probability of a non-exit (i.e., remaining as an active firm), and lower probability of them being acquired/merged or going public. On the other hand, informal $\times$ external firms share similar characteristics with external only firms in terms of having an exit event. There are two possible interpretations of the results. First, it may be that the presence of informal investors may reduce myopia (Bertrand and Schoar, 2006; J. C. Stein, 1989). Second, informal financing can influence the startup founder to take less desired risks, which we discuss more in the following sections. These results are consistent with the prediction that, while informal firms have lower returns (which is consistent with Lee and Persson (2016)), informal $\times$ external firms demonstrate similar levels (at least in terms of firm outcomes).

Next, we test our second prediction by investigating whether entrepreneurs take less risks when firms receive informal investments, doing so by testing for firm financial performance. Specifically, we examine firm-years that have informal investors as equity in-

vestors against those that do not, as well as the interaction of informal investor dummy with external investor dummy, do investigate whether informal $\times$ external firms have different effects. As proxies for risk-taking, we use various financial statement measures, such as profitability, innovation, and growth. Our regressions show that startups that receive informal financing experience are associated with higher profitability (12.6%p), but lower intangibles (2.9%p), fewer patent applications (79%), and lower revenue growth (11.9%p). Meanwhile, informal $\times$ external startups exhibit significantly stronger levels of risk-taking, even compared to external firms. These results support our argument that informal firms are associated with reduced risk-taking, whereas informal $\times$ external firms are associated with even stronger risk-taking than external startups.

Our above analyses, however, are unable to directly tease out the investment selection from the effects of informal investors. The reduced risk-taking results could also be driven by informal investors' poor investment selection because of altruistic motives. To illicit the mechanisms, we conduct instrumental variables (IV) regressions by exploiting the mean distance between the startup founder and his/her family's residential address as the instrument. We anticipate and find (F-statistics ranging from 28.95 to 46.13) a strong first-stage correlation between our distance measure and the informal investment indicator. More importantly, we expect the distance between startup founders and their family members would not impact startup risk-taking or performance, and therefore the exclusion restriction to hold.

Interestingly, our IV regressions mostly mute the main results we observe in our main results. Specifically, the second-stage estimates indicate that the reduced firm risk-taking results (ROA, patent applications, and revenue growth), financing results (VC and foreign investor), and ultimate outcomes turn insignificant. We interpret this finding as evidence that suggests that most of the main results we observe stem from informal investors' investment selection. Furthermore, this is consistent with the altruism hypothesis, where informal investors are willing to accept lower returns for their investments.

We explore the heterogeneous nature of our effects. In particular, we investigate whether informal investments made by wealthy investors have different risk-taking behavior than our main analysis. On the one hand, wealthy informal investors may have stronger altruistic incentives when investing in startups founded by their family members; on the other hand, informal investments made by wealthy individuals are more likely to resemble that of angel investments, as they may have more investment experience, as Bach et al. (2020) and Fagereng et al. (2020) document that expected returns on wealthy individuals are strongly persistent. We extend our analysis by re-estimating the main regressions mentioned above (using financial performance variables as dependent variables), on the interaction of the informal investment indicator with an indicator that classifies individuals who have above-median wealth in our sample. We find that both informal firms and informal×external firms are correlated with less risk-taking when the informal investors are wealthy.

We contribute to two streams of academic literature. First, we contribute to the literature that studies the role of financing on startups and innovation, by providing empirical evidence on an important but understudied source of entrepreneurial financing.[3] Specifically, our innovation is to examine the characteristics of *informal* financing sources (e.g., family investors), which is distinguished from angel investors (e.g., Bach et al., 2022; Hellmann et al., 2021; Hellmann and Thiele, 2015; Kerr et al., 2014; Lerner et al., 2018; Lindsey and L. S. Stein, 2020; Wong, 2002) or VC investors (e.g., Bernstein et al., 2016; Hellmann and Puri, 2002; Sorensen, 2007), who are thought to be more sophisticated. Not only these investments are economically significant, but also generate different economic predictions than angel/VC investments (e.g., their altruistic motives).

Second, we contribute to the literature on individual/retail investors. Several studies have demonstrated the lower returns of retail/unsophisticated individuals, compared to institutional investors (e.g., Barber et al., 2008; Barber and Odean, 2000). While most of the

[3]See Kerr and Nanda (2015) for a detailed review.

studies in this area of research have focused on retail investments in *public* equity markets where the investors have limited influence in firm behavior, our innovation is that we document a certain group of retail investments (i.e., informal investments into startups) is associated with lower returns (which is consistent with existing behavior) than those of sophisticated investors, but more importantly, because the existence of these investors as shareholders is associated with startup's operational outcomes and risk-taking behavior.

2 Data and Sample Construction

2.1 The Norwegian Administrative Data

Norwegian administrative data are recognized for their quality and detail and have been used prominently in research in labor economics, finance and innovation (for recent examples, see Fagereng et al., 2021; Hvide and Jones, 2018; Ring, 2023). Our main data comes from the annual tax declarations of the population of Norwegian public and private limited liability companies and their shareholders. These declarations have been digitally collected and stored in a data warehouse since 2004, and we obtain data up through to the end of calendar year 2018. The data identify firms' shareholders and their shareholdings and all equity purchase, sale and liquidation transactions. Each transaction comprises dates, amounts, number of shares transacted, and whether a purchase transaction is a primary (issuance of new shares) or secondary (purchase of shares from an existing investor) purchase. We process the transaction data such that an equity purchase is defined by a unique combination of investor, purchase date, firm, share class and purchase type (primary or secondary). This implies that, while the raw data may correctly show two purchase transactions of the same purchase type by the same investor on the same date of shares in the same firm that are of the same share class, we aggregate these two records to one observation. Correspondingly, we process realization transactions such that an equity realization is defined by a unique combination of investor, purchase date,

realization date, firm, share class, purchase type (primary or secondary) and realization type (sale or liquidation). From the same data source, we obtain additional personal-level annual wealth information for the shareholders for the sample period 2011–2018.

The transaction records also include a unique national firm identification number (*organisasjonsnummer*), which is allocated to all firms registered in Norway and to foreign institutional shareholders of these firms. This firm identification number is consistently used in all firm registries and allows the data to be merged to other databases. Ultimately, we merge the tax declarations to financial statements data, business registry data, firms' incorporation documents and board data. We identify board members and executives among all individuals in the tax declarations by fuzzy matching on full names and exact matching on birth dates.

2.2 Sample Construction

To construct our sample of interest, we begin by identifying all newly established limited liability companies (analogous to C-corporations in the U.S.) that have been incorporated between 2004 and 2017. We remove financial services and real estate firms, newly formed subsidiaries of established companies, holding structures and firms operating in non-innovative industries, which are also either heavily regulated, or have high levels of public-sector involvement or ownership, or that are highly supported via taxes and/or subsidies.[4] Of course, it is unlikely that most of these firms have growth aspirations or the intention to develop large-scale commercial innovation. As Hurst and Pugsley (2011) shows, most small business owners (in the U.S.) have no desire to grow, operating their businesses primarily for lifestyle purposes.

[4]We apply negative selection to rule out such industries. Excluded industries are: *agents/traders, agriculture, banks, brokers, cultural event producers, direct health services, education, fisheries, food production, gym/sports facilities, hotels, insurers, investment management, kindergartens, garages, mail-order, mining, museums, oil and gas production, physical shops, public services, publishing, real estate, restaurants, shipping companies, wholesale traders, direct services (e.g., hairdressers, for tourists, car rental, lawyers, maintenance, accountants, auditors, builders, plumbers, electricians, undertakers, taxis).*

To identify firms with high potential for innovation, we follow the spirit of the Startup Cartography Project (Andrews et al., 2022; Guzman and Stern, 2020; Guzman and Stern, 2015) and its application to the Norwegian business context in Kisseleva et al. (2025). We use a series of observable firm-level indicators to gauge a firm's likely innovation potential at the time it first appears in the tax registry data. The first flag is whether the firm has an English-language firm name. The idea behind this flag is that, because Norway is a country of only approximately five million people, an English-language firm name helps the firm be recognizable to a broader, international audience and therefore is a natural choice for an entrepreneur who intends to grow. The second flag is whether the firm is located in a regional innovation hub in Norway. The four innovation hubs in our data are Oslo, Bergen, Stavanger and Trondheim. These are the four largest cities in the country, and each hosts a major research university and has an associated technology cluster (Hvide and Jones, 2018). The third flag tracks whether one of the company's nonexecutive board members lives in a geographically distant area from the city in which the company operates. The idea here is that the choice of a geographically distant board member in the year of establishment is a potential indication that the founders (or an investor) have recruited a board member with specific technical or market expertise not readily found nearby. To remain agnostic about which of these flags is more or less salient in a particular setting, we define the firm as a high-innovation-potential (HIP) firm if at least one flag can be applied to it. This criterion yields a sample of 51,243 firms and contains 87% of all the firms that receive any VC funding in our data. The HIP sample selection process is presented in Table A1.

Out of the entire pool of HIP firms, 5,152 HIP firms have an informal investor who invested at least NOK 10,000 (approximately eight Norwegian kroner to the US dollar over the sample period) in the firm's equity, either in a financing round or through a secondary transaction. We define an informal investor as a family member of entrepreneur, as identified through the relationship nodes information provided by the Norwegian Tax

Authority, in the year of firm incorporation. All other individual investors are classified as external investors. Out of 5,152 firms with an informal investor, 3,695 firms have only informal but no external individual investors (informal-financed firms) and 1,457 both informal and external individual investors (informal $\times$ external firms). 15,210 HIP firms have at least one external investor and none informal investors (external-financed firms). Informal-financed, informal $\times$ external-financed and external-financed firms represent our final sample.

Figure 1 plots the relative frequency of startup age at the year of informal financing. The figure shows that the most informal financing is provided in the very beginning of the firm life. Approximately 70% of informal financing occurs in the year of startup's business registration, which validates the idea that informal investors are willing to provide capital at the earliest stages of the startup. The mean startup age for informal investments is 0.95, which is lower than that of external financing (2.46) and (professional) angel investments from Hellmann et al. (2021), who report a mean firm age of 4.5 years.

Insert Figure 1 here.

Figure 2 provides an overview from which family members an entrepreneur receives informal financing. Panel A shows the distribution of different family members categories and Panel B provides with their average and median financing amounts. In almost 40% of cases, informal financing comes from the spouse/partner of the entrepreneur, followed by her siblings (slightly more than 20%) and children and parents/grandparents (20%). However, at the same time, spouses/partners provide on average the lowest financing amounts, while siblings the highest. We do not see any difference in the provided financing amounts in median terms.

Insert Figure 2 here.

Figure 3 plots the industry composition of startups that receive informal and external financing. Panel A and Panel B report the classification based on Pitchbook and Inter-

national Standard Industry Classification (ISIC), respectively. For each panel, we decompose the sample of firms into informal, external, and informal $\times$ external firms. In both panels, we observe similar industry distributions for startups with or without informal financing. Particularly, the most common industry is Research and development and IT, which comprises approximately 50% of our sample startups. This composition validates our startup filter to restrict firms to HIP firms.

Insert Figure 3 here.

2.3 Sample Description

Table 1 presents descriptive statistics of equity investments made in our sample firms, partitioned by whether the investment has been made by an informal or external investor. A number of interesting characteristics emerge. First, informal investments on average have lower realized returns (TVPI); specifically, mean TVPI of informal investments (external investments) is 1.42 (1.98). This is consistent with the prediction that informal investments have lower returns on average, as well as the findings from the retail investor literature that demonstrate underperformance compared to benchmarks (see Barber and Odean, 2013, for a review.). This also applies to the internal rate of return (IRR), whereby informal investor lose on average (and also in median terms) monthly more money (-48.5%) than their external counterparts (-36.0%). The low IRRs are mainly driven by the fact that realized investments often are zero, which translates into an IRR of -100%. In fact, informal investors lost completely their money in 46.8% of investments, which is 12%p more than external investors. The IRRs are significantly lower than the reported IRRs in the literature; for instance, Ljungqvist and Richardson (2003) report a mean IRR of 19.8% for VC funds. This disconnect, however, also can be an evidence how risky very early-stage startup investments are for individuals in comparison to VC investors, who invest later in the startup life-cycle.

Second, in terms of investment characteristics, similar to Figure 1, we find informal financing is made at an earlier startup age (0.78 years old) than external financing (2.49 years old). In addition, informal investments take almost three times higher ownership stake (mean 31.2%) than external investments (mean 11.1%), and has approximately 40%p higher probability of being assigned a board seat (mean 75.7% for informal investments vs. mean 36.9% for external investments).

Finally, there are also significant differences with regards to investor characteristics. Informal investors are a couple of years younger, significantly less likely to be male (which corresponds to the main family member category being a spouse), less likely to be an experienced repeat angel investor and public investor, and they are less wealthy (i.e., 39% of informal investors have above-median wealth vs. 55.4% of external investors). Moreover, informal investors are less wealthy and have less investing experience (both in startups and public equities).

Insert Table 1 here.

Table 2 describes our informal-financed and external-financed firms. Specifically, we decompose our set of firms into external, informal $\times$ external, and informal firms. Regardless the type of firm financing, founders have on average six family members, with family members in informal-financed firms living closest to the entrepreneur and furthest away from founders, whose startups are financed by external individuals.

In terms of the overall firm trajectory, informal firms show lower higher likelihood of no exit event (71.1% vs. 62% for external and informal$\times$external firms, and lower probability of M&A/IPO (4.9%, compared to 13% for other types). These statistics is consistent with the notion that informal startups take less risk and therefore yield lower firm returns than external-financed ones.

Insert Table 2 here.

On overage, external-financed firms receive much more equity than informal-financed firms. Interestingly, informal×external firms are much more likely to receive investments from repeat angel investors (30.1%), individuals who have experience in investing in startups, than other startup types (19% for external firms, 5.5% for informal firms). This pattern is also consistent across different institutional investor types, such as venture capital, corporate, or foreign investors. This statistic aligns with our argument that informal×external startups possess at least comparable quality against external startups.

In addition, we examine firm financials to understand the nature of our sample firms. External firms are the largest among the three groups, with NOK 7.06 million (USD 1.07 million) in revenues and NOK 8.35 million (USD 1.27 million) in total assets.[5] Informal firms show the smallest size (NOK 2.65 million revenues and NOK 4.33 million total assets) and growth (72.3% revenue growth and 64% asset growth, compared to 107% revenue growth for externally-financed firms). Conversely, informal firms have highest ROA and lowest leverage, suggesting that these firms take lowest risk among the three groups. Overall, the results are consistent with the notion that informal firms take less risks, while external-financed firms take more.

[5]Amounts in USD are based on an exchange rate of 6.6 NOK per USD, the average daily interbank market midquote rate reported by Norges Bank over our sample period.

3 Empirical Analyses

3.1 Returns to Informal Investments

To test the prediction that informal investments have lower returns than external financing, we estimate the following ordinary least squares (OLS) regression model:

$$\begin{aligned} Return_{i,j,t,s} = \beta_1 Informal_j + \beta_2 Investor\ age_{j,t} + \beta_3 Male_j + \beta_4 Repeat\ angel_j \\ + \beta_5 Public\ stock_j + +\beta_7 Ownership_{i,j,t} + \beta_7 Holding\ Period_{i,j,t,s} \\ + \beta_8 Board\ Seat_{i,j,t} + \gamma_{i,j,t,s} + \varepsilon_{i,j,t,s}. \end{aligned} \tag{1}$$

The dependent variable is the realized or unrealized investment return $Return_{i,j,t,s}$, measured either as $TVPI$ or $Monthly\ IRR$. For unrealized investments, we take the price at the latest financing round. $TVPI$ is total value to paid in capital and is calculated as realization amount divided by purchase amount of realized shares. $Monthly\ IRR$ is computed as $TVPI^{(30/holding\ period\ in\ days)} - 1$. Both $TVPI$ and IRR are winsorized at the 1^{st} and 99^{th} percentiles. Our main variable of interest, $Informal_j$, is a dummy variable taking the value of one if the investment is done by an informal investor (i.e., family member of the founder). $Investor\ age_{j,t}$ is the natural logarithm of the investor's j age at the time of investment t. $Male_j$ is a dummy variable taking the value of one for male investors. $Repeat\ \ angel_j$ is a dummy variable taking the value of one for an individual investor who has invested at least in two firms with high innovation potential in our sample. $Public\ stock_j$ is a dummy variable taking the value of one for investors who have made at least one direct investment in public stock in prior to the investment. $Ownership_{i,j,t}$ is the natural logarithm of the ownership stake of the investment in firm i. $Holding\ Period_{i,j,t,s}$ is the number of days between the investment date t and realization date s. $Board\ Seat_{i,j,t}$ is a dummy variable taking the value of one if the investor holds a board seat in the firm i at the time of investment t. $\gamma_{i,j,t,s}$ includes investment calendar year, firm age at time of

investment, industry and region fixed effects. We cluster standard errors at the firm level.

Insert Table 3 here.

Table 3 reports the regression results of Equation 1. The first two columns use realized returns as the dependent variable, while the last two use unrealized returns. Consistent with the predictions, for realized returns we find a negative and significant coefficient for $Informal_j$, which suggests that informal investments yield lower realized returns compared to external investments. Economically, the realized TVPI is 76.3%p lower than that of external investors. The results are consistent when we use monthly realized IRR as the dependent variable, such that informal investment realize a 7.7%p lower returns than external investments. An interpretation of this is that, consistent with Nadauld et al. (2019), realized investments are often purchased at a discount due to sellers' liquidity constraints. Informal investors may suffer liquidity constraints more so than external investors, and thus the realized price may be much lower. Furthermore, we expect the high write-off frequency to drive the lower returns. When unrealized returns are used as the dependent variable, we observe much weaker results, although the directions remain the same and magnitude of the coefficient increases.

Overall, the results suggest that informal investments into startups are associated with lower returns than external financing. This is consistent with the prediction from Lee and Persson (2016), who predict informal investors have lower required returns than external investors. Moreover, this result is also consistent with the findings from the retail investor literature, which documents lower returns compared to benchmarks.

3.2 Outcomes of Informal-Financed Startups

3.2.1 Institutional Financing

Next, we investigate whether startups that receive informal financing have different firm outcomes than startups without. The underlying motivation for this test is to validate and

explore whether informal-financed startups have lower probability of positive and negative outcomes than startups without informal financing. We test this idea in two ways. First, we explore whether startups with informal financing have different probabilities of receiving different types of sophisticated financing, such as investments from angels, VC, corporate, or foreign investors. To do so, we estimate the following logit regression model:

$$\begin{aligned} Financing_{i,t} = \beta_1 Informal_i + \beta_2 Informal \times External_i \\ + \beta_3 \ln(Revenues_{i,t}) + \beta_4 \ln(Total\ assets_{i,t}) + \beta_5 Asset\ growth_{i,t-1;t} \\ + \beta_6 ROA_{i,t} + \beta_7 Leverage_{i,t} + \beta_8 Ownership\ concentration_{i,t} + \gamma_{i,t} + \varepsilon_{i,t}. \end{aligned} \tag{2}$$

The dependent variable $Financing_{i,t}$ is a dummy variable taking value of one if the firm receives an equity injection in year t from a repeat angel investor, venture capital (VC) investor, corporate investor or foreign investor, respectively. $Informal_i$ is a dummy variable taking the value of one if the firm has been financed by at least one informal investor. $Informal \times External_i$ is an interaction term taking the value of one if the firm has been financed by both informal and external investors. $\ln(Revenues_{i,t})$ is the natural logarithm (+1) of revenues (in Tsd. NOK) in year t. $\ln(Total\ assets_{i,t})$ is the natural logarithm (+1) of total assets (in Tsd. NOK) in year t. $Asset\ growth_{i,t-1;t}$ measures the one-year growth in total assets in year t. $ROA_{i,t}$ is the return on assets and $Leverage_{i,t}$ the leverage of the firm, each measured in year t. $Ownership\ concentration_{i,t}$ is the Herfindahl-Hirschman index (HHI), based on the ownership stakes of all shareholders in year t. γ_i, t includes industry by calendar year, industry by firm age, and region fixed effects. We cluster standard errors at the firm level.

Table 4 shows the results of Equation 2. Informal firms have 80.3% lower odds of receiving experienced (repeat) angel money (Column (1)), while informal×external firms have net 91.7% higher odds to receive one.[6] The results are similar when different types

[6]The negative effect of 80.2% is calculated as $e^{(-1.623)} = 0.197$, indicating that the odds of informal–

of institutional financing are used as dependent variables. While informal firms demonstrate a significantly lower probability (compared to external firms) of receiving financing from other sources, informal×external firms showcase a higher odds of doing so.

The control variable coefficients also yield insights into the determinants of institutional financing. Across all columns that include firm-level controls, institutional financing is positively related to higher growth (asset growth) and lower profitability, which is consistent with the notion that higher firm risk-taking is associated with favorable financing outcomes.

Insert Table 4 here.

3.2.2 Ultimate Firm Outcomes

Second, we analyze the ultimate outcomes of the startup firms. In particular, we investigate whether informal firms exhibit different paths than other types of firms. To do so, we estimate the following logit regression model:

$$\begin{aligned} Firm\ outcome_{i,T} = {} & \beta_1 Informal_i + \beta_2 Informal \times External_i \\ & + \beta_3 \ln(Revenues_{i,T-1}) + \beta_4 \ln(Total\ assets_{i,T-1}) \\ & + \beta_5 Asset\ growth_{i,T-1;T} + \beta_6 ROA_{i,T-1} + \beta_7 Leverage_{i,T-1} \\ & + \beta_8 Ownership\ concentration_{i,T-1} + \gamma_{i,T} + \varepsilon_{i,T}. \end{aligned} \tag{3}$$

The dependent variable $Firm\ outcome_i$ is a dummy variable taking the value of one if the firm is still operating independently and, thus, has had no exit event as of 2018, the firm has gone bankrupt, or the firm has experienced a successful exit, such as merger, acquisition or IPO during our sample period. $Informal_i$ is a dummy variable taking the value of one if the firm has been financed by at least one informal investor. $Informal \times External_i$ is an interaction term taking the value of one if the firm has been financed by

financed firms is 19.7% (80.3% lower than) of the omitted group, external–financed firms. Similarly, the positive effect of 91.7% is calculated as $e^{(2.274-1.623)} = 1.917$.

both informal and external investors. $\ln(Revenues_{i,T-1})$ is the natural logarithm (+1) of revenues (in Tsd. NOK) and $\ln(Total\ assets_{i,T-1})$ is the natural logarithm (plus one) of total assets (in Tsd. NOK). $Asset\ growth_{i,T-1;T}$ measures the one-year growth in total assets, $ROA_{i,T-1}$ the return on assets and $Leverage_{i,T-1}$ the leverage of the firm, each measured in the latest observable year prior to the exit event or 2018, in case the startup is not exited by the end of our sample period. $Ownership\ concentration_{i,T-1}$ is the Herfindahl-Hirschman index (HHI), based on the ownership stakes of all shareholders, measured at the same time. γ_i includes industry, region and founding year fixed effects. Standard errors are robust.

Table 5 shows regression results for Equation 3. Columns (1) and (2) show results that use an indicator variable which equals one if the startup has not exited at the most recent year (2018) in our sample. In column (2), the coefficient $Informal$ suggests that startups with informal investors are associated with 48.3% higher odds of not exiting and staying as an active firm. The interaction term $Informal \times External$ is also negative, albeit to a smaller extent (coefficient of -0.157*). Through columns (3)-(5), we analyze whether informal and informal×external startups have different likelihood of going bankrupt. While we do not find significant results in the probability of going bankrupt, informal×external firms show statistically significant longer time to reach bankruptcy conditional on going bankrupt. Columns (6)-(8) test for probabilities of firms being acquired or going public. Column (7) suggests that, informal–financed firms have significantly lower probability (65.9% lower odds) of M&A or IPO; informal×external firms show 36.4% lower odds than external firms.[7]

The control variables in this table again confirms the growth and profitability measure as indicators of risk-taking. In columns (4) and (7), asset growth (ROA) is positively (negatively) associated with the probability of bankruptcy (an extreme negative outcome)

[7]The negative effect of 65.9% is calculated as $e^{(-1.075)} = 0.341$, indicating that the odds of informal–financed firms is 34.1% (65.9% lower than) that of external–financed firms. Similarly, the negative effect of 36.4% is calculated as $e^{(0.492-0.944)} = 0.636$, indicating that the odds of informal×external–financed firms is 63.6% (36.4% lower than) of external–financed firms.

as well as the probability of M&A and IPO (an extreme case of positive outcome).

Overall, the results are consistent with the notion that informal startups have lower variance in terms of long-term outcomes. We interpret the results as consistent with the argument that altruistic ties can increase the entrepreneur's aversion to failure (longer time to go bankrupt) and undermines the entrepreneur's willingness to take risk (lower probability to go M&A). However, we also acknowledge that informal financed startups tend to favor long-run decisions than startups without informal financing.

Insert Table 5 here.

4 Do Entrepreneurs Reduce Risk-Taking if They Receive Informal Financing?

4.1 Baseline Results

In this section, we further investigate whether the informal-financed startups take less risks, by exploiting the financial statement information through the Norwegian administrative data. In particular, we estimate the following Poisson/OLS regression model:

$$\begin{aligned} Y_{i,t} = {} & \beta_1 Informal_i + \beta_2 Informal \times External_i \\ & \beta_3 \ln(Revenues_{i,t}) + \beta_4 \ln(Total\ assets_{i,t}) + \beta_5 Asset\ growth_{i,t-1;t} \\ & + \beta_6 ROA_{i,t} + \beta_7 Leverage_{i,t} + \beta_8 Ownership\ concentration_{i,t} + \gamma_{i,t} + \varepsilon_{i,t}. \end{aligned} \tag{4}$$

The dependent variable $Y_{i,t}$ measures different proxies for firm's risk-taking in year t: return on assets (ROA), intangible assets scaled by total assets, number of total patent applications, and one-year revenue growth. $Informal_i$ is a dummy variable taking the value of one if the firm has been financed by at least one informal investor. $Informal \times External_i$ is an interaction term taking the value of one if the firm has been financed

by both informal and external investors. $\ln(Revenues_{i,t})$ is the natural logarithm (+1) of revenues (in Tsd. NOK) in year t. $\ln(Total\ assets_{i,t})$ is the natural logarithm (+1) of total assets (in Tsd. NOK) in year t. $Asset\ growth_{i,t-1;t}$ measures the one-year growth in total assets in year t. $ROA_{i,t}$ is the return on assets and $Leverage_{i,t}$ the leverage of the firm, each measured in year t.[8] $Ownership\ concentration_{i,t}$ is the Herfindahl-Hirschman index (HHI), based on the ownership stakes of all shareholders in year t. γ_i, t includes firm age, calendar year, industry, region, calendar year by industry as well as firm age by industry fixed effects. We cluster standard errors at the firm level.

Table 6 reports the results of Equation 4. Across the proxies, we find results consistent with the reduced risk-taking behavior for startups with informal financing. We document that startups that receive informal financing associated with higher return on assets (ROA) (12.6%p), but lower intangibles ratio (-2.9%p), fewer patent applications (-78.9%p) and lower sales growth (11.9%p).[9] These coefficients suggest that informal startups are associated with stronger profitability and lower R&D output, which is consistent with the reduced risk-taking hypothesis.

On the other hand, the interaction term $Informal \times External$ overall show results consistent with *additional* risk-taking even compared to external firms. ROA (negative coefficient), intangible assets, patent applications, and revenue growth (all three positive coefficients) are all statistically significant and are consistent with risk-taking behavior.

The regression coefficients overall imply that while informal firms show significantly less risk-taking behavior, informal×external firms are associated with stronger risk-taking, consistent with our predictions. The reduced risk-taking may be a mechanism behind the lower informal investment returns we observe in the previous section. On the other hand, a possible explanation why we find *stronger* risk-taking behavior from informal×external firms could be that informal×external investments may be *better* startups among the three

[8] We do not include ROA for regressions that use ROA as the dependent variable.

[9] The negative effect of 78.9% is based in the negative coefficient of -1.557 from the Poisson regression in Column (3) and calculated as $e^{(-1.557)} = 0.211$, indicating that the count of patent applications in informal–financed firms is 21.1% (78.9% lower than) of external–financed firms.

groups of firms. In this scenario, informal investors would have lower information asymmetry than external investors, which enables them to invest earlier in the startup.

Insert Table 6 here.

4.2 Instrumental Variables

The main results discussed above, however, are insufficient to fully tease out the mechanisms. While the reduced risk-taking and lower probability of institutional financing could be due to the influence informal investors exert to the founders, it could also be due to informal investors' poor investment selection and altruistic motives. To tease out these mechanisms better, we utilize an instrument that exploits the rich and granular data we have on the startup founders. Specifically, we measure the geographical distance between the founder's and his/her family members' residential address,[10] at the time of the firm incorporation. The first stage is estimated using the following model:

$$\begin{aligned} Informal\ Financing_i = {} & \beta_1 \ln(Distance_{j,k,t}) + \beta_2 \ln(Revenues_{i,t}) + \beta_3 \ln(Total\ assets_{i,t}) \\ & + \beta_4 Asset\ growth_{i,t-1;t} + \beta_5 ROA_{i,t} + \beta_6 Leverage_{i,t} \\ & + \beta_7 Ownership\ concentration_{i,t} + \gamma_{i,t} + \varepsilon_{i,t}, \end{aligned} \tag{5a}$$

where $\ln(1 + Mean\ \ Distance_i)$ is the natural log of one plus mean distance between a startup founder i's residential address and his/her family members' residential addresses, measured at the date of firm incorporation; other variables follow the definition defined above.

[10] We measure the distance between the zip codes with geographical coordinates as inputs. The data on all Norwegian zip code coordinates is publicly provided by Erik Bolstad: https://www.erikbolstad.no/postnummer-koordinatar/?postnummer=0010.

The second-stage equation replicates our Equation 4:

$$\begin{aligned} Y_{i,t} = \beta_1 \widehat{Informal\ Financing}_i + \beta_2 \ln(Revenues_{i,t}) + \beta_3 \ln(Total\ assets_{i,t}) \\ + \beta_4 Asset\ growth_{i,t-1;t} + \beta_5 ROA_{i,t} + \beta_6 Leverage_{i,t} \\ + \beta_7 Ownership\ concentration_{i,t} + \gamma_{i,t} + \varepsilon_{i,t}. \end{aligned} \tag{5b}$$

Subscript i denotes a firm, founded by an entrepreneur j, who has family member(s) k. The dependent variables ($Y_{i,t}$) include dependent variables used in Tables 4, 5, and 6.

Insert Table 7 here.

Tables 7–9 report the IV regression results. In Table 7, Panel A represents the pooled estimations; Panel B restricts the sample to informal firms and external firms. Our first stage regressions in the pooled estimations in Panels A (Columns (1)-(3)) indicate a strong relationship (a strongly statistically significant coefficient of -0.014 or -0.015) between our distance measure and the informal investment dummy, regardless of the inclusion of an additional control and varying number of observations. We record a first-stage F-statistic of approximately 30 for most specifications.

In the second-stage, we find weaker results than the main results we find in Table 4. In particular, while we still find negative coefficients for repeat angel financing and corporate investor dummies, we do not find significant results for venture capital or foreign investors in both panels.

Insert Table 8 here.

Table 8 further demonstrates weak results in the second stage. Similar to Table 7, we present results using pooled (Panel A) and informal and external only startups (Panel B). We do not find significant results for ROA, patent applications, and revenue growth.

Insert Table 9 here.

Finally, Table 9 reports the IV regressions that test for ultimate startup outcomes. Again, we do not find meaningful results, contrary to our OLS regressions reported in Table 5. Tables 7–9, collectively, suggest that the lower risk-taking results which we observe are largely driven by informal investors' investment selection. This also is consistent with the altruism hypothesis, that informal investors are willing to invest in lower quality or lower risk-taking startups.[11]

5 The Role of Investor Wealth in Informal Financing

Subsequently, we analyze the role of wealth when providing/receiving informal financing. Wealthy investors may be more sophisticated and have more investing experience, and may resemble angel investors in terms of return characteristics. Alternatively, wealthy informal investors could have stronger altruistic motives, which could then be associated with lower risk-taking for these startups. We test this claim by interacting the $Wealth_{i,t}$ indicator (which equals one if the investor has an above-median wealth and zero otherwise) with the informal indicator.[12]

Table 10 reports the results. We decompose our sample into pooled (Panel A), informal firms vs. external firms (Panel B), and informal×external firms vs. external firms. The pooled regressions suggest that firms that have a wealthy informal investor are associated with statistically significant 10.1%p higher profitability, 2.9%p lower intangibles ratio and 67.5% less patent applications than firms that have a non-wealthy informal investor.[13] The interaction term coefficients for the one-year revenue growth is also negative, albeit statistically not significant. Interestingly, both Panels B and C depict similar results.

[11] In untabulated results, we instrument informal financing with the family size instead of the average distance of the family members. While F-statistic is lower for this instrument, results remain qualitatively unchanged.

[12] Note that the wealth data only contains information from 2011. Hence the number of observations is lower than our main regressions.

[13] The negative effect of 67.5% is based in the negative coefficient of -1.125 from the Poisson regression in Column (3) and is calculated as $e^{(-1.125)} = 0.325$, indicating that the count of patent applications in informal–financed firms is 32.5% (67.5% lower than) of external–financed firms.

Note that the main effect of wealth suggests that external wealthy investors are associated with stronger risk-taking behavior. We interpret these results as evidence consistent with the argument that, while wealthy investors may be more sophisticated and encourage risk for their investments, they may be more risk averse especially in settings where shadow costs are high (i.e., family investments). Overall, our regressions imply that receiving investments from wealthy family members reduces entrepreneurs' risk-taking behavior.

Insert Table 10 here.

6 Conclusion

In this paper, we explore the characteristics of informal investments. Consistent with extant literature and its theoretical predictions, we find that informal investments are related to lower returns. The startups that only receive informal financing are associated with lower risk-taking behavior, while firms that receive from both types showcase stronger risk-taking behavior. However, our IV regressions suggest that poor investment selection is likely to drive the main findings, which is consistent with the altruism hypothesis. Informal investments by wealthy entrepreneurs are associated with even less risk-taking, consistent with the argument that wealthy investors may have stronger altruistic motives for informal investments.

We contribute to the academic literature by empirically demonstrating the investment characteristics of informal investments, which are economically significant and yield different theoretical predictions than other seasoned investors, such as angels and VC funds. Furthermore, our analyses on informal investor returns also characterize retail investor returns in a startup setting.

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Figure 1: **Timing of the Investments**

Figure 1 shows the distribution of the timing when informal and external investments are made. Blue (grey) bars represent firm age when informal (external) investments occur.

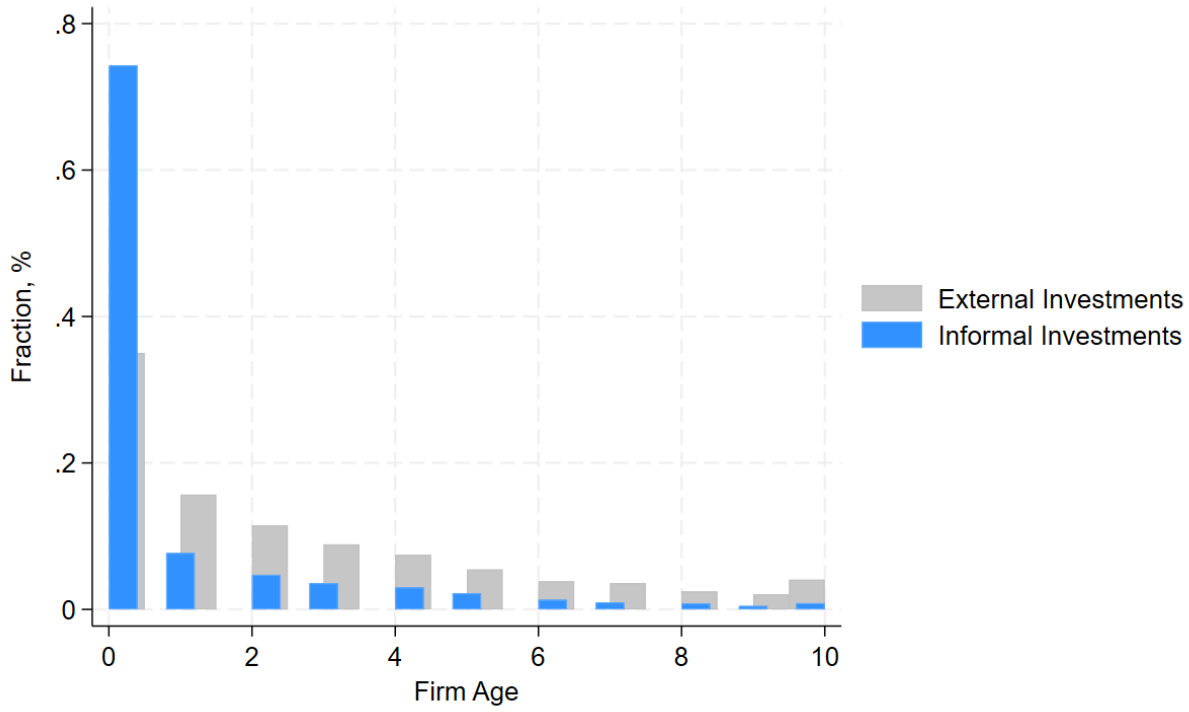
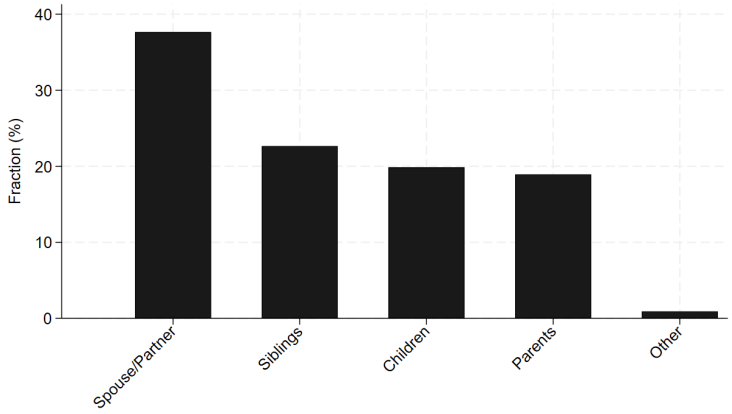


Figure 2: **Who Provides Informal Financing?**

Figure 2 shows the distribution of different family members categories providing informal financing (Panel A) and the financing amounts provided by each category (Panel B).

Panel A: Family Members Categories



Panel B: Financing Amount by Family Members Categories

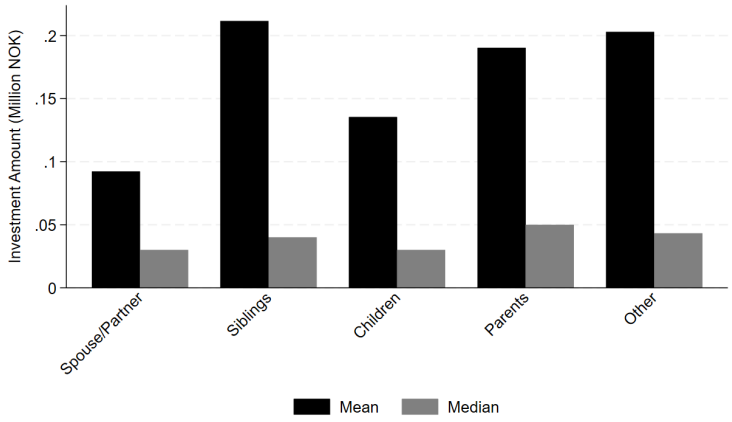
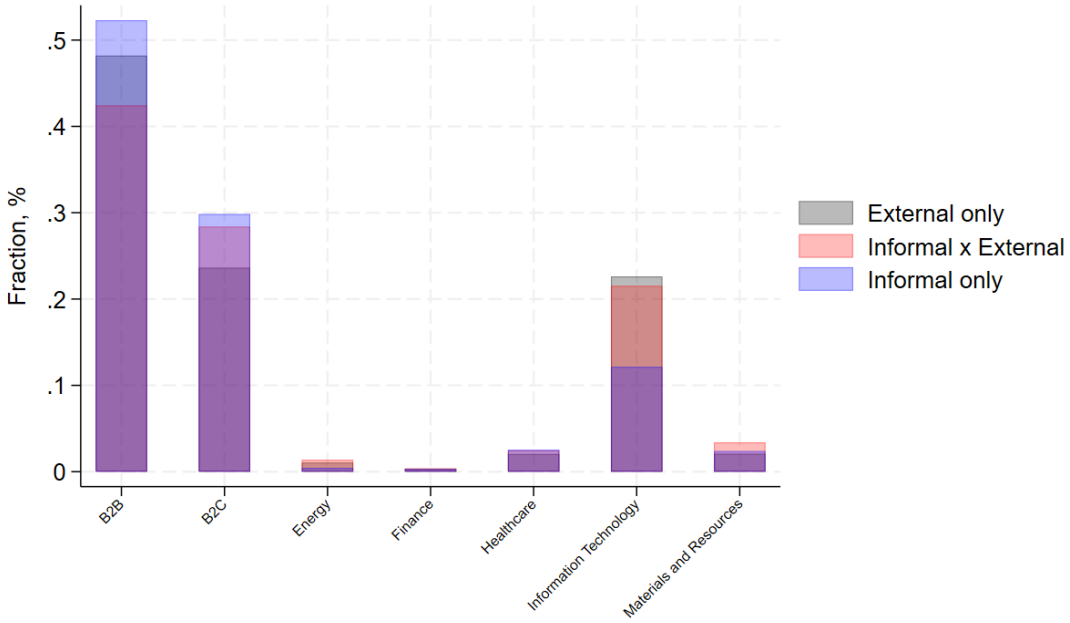


Figure 3: **Distribution of Operating Industries**

Figure 3 Panels A and B show the distribution of the firms' operating industries by financing type. Panel A follows the industry classification by the startup-specialized data provider Pitchbook. Panel B follows the more traditional ISIC classification. Grey represents firms that receive external financing only. Blue represents firms that receive informal financing only. Red represents firms that receive both informal and external financing.

Panel A: Pitchbook Industry Classification



Panel B: ISIC Industry Classification

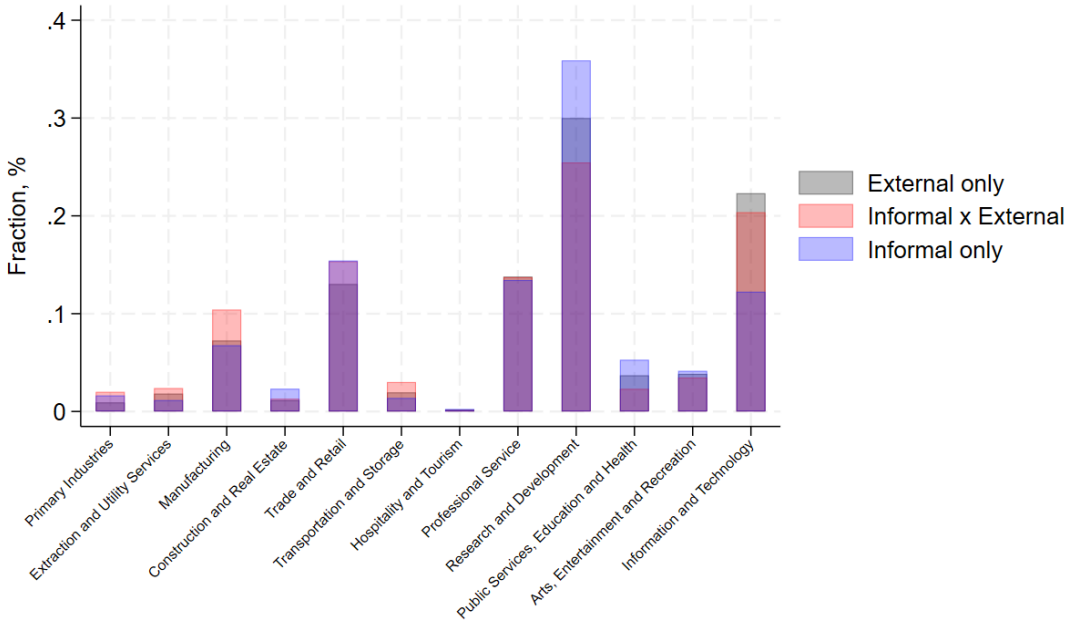


Table 1: Description of Equity Investments

Table 1 describes equity investments in our sample of informal-financed and external-financed firms in the period 2004–2018. We define an informal investor as an individual investor who has a family relation to the founder of the firm, as identified by tax authorities, in the year of firm incorporation. All other individual investors are classified as external investors. $TVPI$ is total value to paid in capital and is calculated as realization amount (purchase price in the latest financing round multiplied by the number of shares purchased) divided by purchase amount of realized (untraded) shares. $Monthly\ IRR$ is computed as $TVPI^{(30/holding\ period\ in\ days)} - 1$. Both $TVPI$ and IRR are winsorized at the 1^{st} and 99^{th} percentiles. $Firm\ age$ is the firm age in the year of the investment. $Ownership\ stake$ is the ownership stake of the investment. $Board\ seat$ indicates whether the investor takes a board seat in the firm at the time of the investment. $Holding\ period\ (years)$ is the holding period of realized investments, measured in years. $Investor\ age$ is the age of the investor in the year of the investment. $Male$ is a dummy variable whether the investor is male. $Public\ stock\ investor$ is a dummy variable taking the value of one if the investor has previously invested in public stocks. $Repeat\ angel\ investor$ indicates whether the investor previously has invested in any other sample firm. $Above\ median\ wealth$ is a dummy variable taking the value of one if the investor is above median wealthy, relative to other investors within the year of the investment. Information about investors' wealth is available for the time period 2011–2018.

	External Investments			Informal Investments		
	N	p50	Mean	N	p50	Mean
Realized returns						
Total value paid in (TVPI)	40,260	0.33	1.98	3,010	0.00	1.42
Monthly internal rate of return (IRR)	40,260	-3.5%	-36.0%	3,010	-21.9%	-48.5%
Total Loss	40,260		34.9%	3,010		46.8%
Unrealized returns						
Total value paid in (TVPI)	37,043	1.00	3.98	1,246	1.00	6.45
Monthly internal rate of return (IRR)	37,043	0.0%	0.3%	1,246	0.0%	1.1%
Investment characteristics						
Firm age	87,030	1.00	2.49	7,463	0.00	0.78
Ownership stake	87,030	1.5%	11.1%	7,463	30.0%	31.2%
Board seat (1/0)	87,030		36.9%	7,463		75.7%
Holding period (years)	40,260	2.84	3.55	3,010	3.73	4.58
Investor characteristics						
Investor age	87,030	45.00	45.81	7,463	43.00	44.10
Male	87,030		85.7%	7,463		56.3%
Public stock investor	87,030		39.4%	7,463		17.4%
Repeat angel investor	87,030		19.6%	7,463		6.9%
Above median wealth	59,314		55.4%	4,352		39.0%

Table 2: Description of Sample Firms

Table 2 describes our sample of informal-, external- and informal × external-financed firms. $Founder's\ Family\ Members$ are based on the founder's family relations, as identified by the tax authorities, in the year of firm incorporation. We measure the distance between family members with geographical coordinates based on the zip codes of their residential addresses. $Firm\ Outcomes$ represent firm's first exit event. $Firm\ Financing$ shows equity injected into the firm (in financing rounds) over our sample period, in total and by investor type. We measure $Ownership\ concentration$ as Herfindahl-Hirschman index (HHI) based on the ownership stakes of all shareholders. $Financials$ comprise all firm-years from the firm's inception until its first exit event. All amounts are in million Norwegian kroner (MNOK) (approximately eight Norwegian kroner to the US dollar over the sample period). Financial ratios are winsorized at the 1^{st} and 99^{th} percentiles. $Innovation\ Output$ presents proxies for the firm's innovation creation over our sample period.

	External-Financed Firms		Informal × External-Financed Firms		Informal-Financed Firms	
	N	Mean	N	Mean	N	Mean
Founder's Family Members						
Number of family members	15,210	5.6	1,457	6.2	3,695	6.1
Average distance (in km) to family members	14,452	89.6	1,438	83.4	3,654	74.8
Firm Outcomes						
No exit event	15,210	61.7%	1,457	62.9%	3,695	71.1%
Bankruptcy	15,210	24.5%	1,457	24.6%	3,695	24.0%
Merger/Acquisition/IPO	15,210	13.9%	1,457	12.4%	3,695	4.9%
Firm Financing (in Mio NOK)						
Total equity injection	15,210	34.37	1,457	10.23	3,695	1.87
Equity injection from	%N		%N		%N	
Entrepreneur	76.8%	0.35	83.3%	0.71	89.5%	0.40
Informal investor			84.1%	0.40	94.3%	0.80
External investor	89.3%	11.61	89.4%	1.93		
Repeat angel investor	19.0%	6.13	30.1%	2.37	5.5%	0.63
Venture Capital investor	2.9%	44.04	3.6%	28.92	0.1%	3.62
Corporate investor	37.2%	40.85	41.2%	12.46	7.1%	10.38
Foreign investor	6.4%	113.30	11.3%	12.48	0.9%	0.94
Ownership concentration	75,012	49.7%	8,554	41.6%	19,922	56.5%
Financials (Amounts in Mio NOK)						
Revenues	75,750	7.06	8,650	6.42	20,069	2.65
1-yr revenue growth	46,164	106.8%	5,553	106.9%	11,986	72.3%
Total assets	75,750	8.35	8,650	7.84	20,069	4.33
1-yr asset growth	60,108	88.4%	7,145	85.8%	16,283	64.0%
Return on assets	75,750	-0.42	8,650	-0.49	20,069	-0.23
Leverage	75,750	143.9%	8,650	149.9%	20,069	113.3%
Innovation Output						
Intangibles / total assets	75,750	6.5%	8,650	9.1%	20,069	2.8%
Total patent applications	75,750	0.05	8,650	0.08	20,069	0.01

Table 3: Do Informal Investors Realize Lower Returns?

Table 3 presents OLS estimates from running the regression as defined in Equation 1. The dependent variables are the realized and unrealized investment return $Return_{i,j,t,s}$, measured either as $TVPI$ (Columns (1) and (3)) or $Monthly\ IRR$ (Columns (2) and (4)). $TVPI$ is total value to paid in capital and is calculated as realization amount (purchase price in the latest financing round multiplied by the number of shares purchased) divided by purchase amount of realized (untraded) shares. $Monthly\ IRR$ is computed as $TVPI^{(30/holding\ period\ in\ days)} - 1$. Both $TVPI$ and IRR are winsorized at the 1^{st} and 99^{th} percentiles. Our main variable of interest, $Informal_j$, is a dummy variable taking the value of one if the investment is done by an informal investor (i.e., investors who has a family relation to the founder in the year of firm incorporation). $Investor\ age_{j,t}$ is the natural logarithm of the investor's j age at the time of investment t. $Male_j$ is a dummy variable taking the value of one for male investors. $Repeat\ angel_j$ is a dummy variable taking the value of one for an individual investor who has invested at least in two firms with high innovation potential in our sample. $Public\ investor_j$ is a dummy variable taking the value of one for investors who have made at least one direct investment in public stock in prior to the investment. $Ownership_{i,j,t}$ is the natural logarithm of the ownership stake of the investment in firm i. $Holding\ Period_{i,j,t,s}$ is the number of days between the investment date t and realization date s. $Board\ Seat_{i,j,t}$ is a dummy variable taking the value of one if the investor holds a board seat in the firm i at the time of investment t. A constant term is estimated but suppressed for brevity. Standard errors are clustered at firm level and are reported in parentheses. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively.

	Realized Returns		Unrealized Returns	
	TVPI	Monthly IRR	TVPI	Monthly IRR
	(1)	(2)	(3)	(4)
Informal investor (1/0)	-0.763***	-0.077***	-0.868	-0.010**
	(0.139)	(0.013)	(0.700)	(0.004)
Investor characteristics				
Ln (Investor age)	-0.543***	-0.049***	-2.336***	-0.030***
	(0.149)	(0.018)	(0.438)	(0.004)
Male (1/0)	0.148	0.012	0.456*	0.003
	(0.129)	(0.009)	(0.238)	(0.002)
Repeat investor (1/0)	0.377**	-0.033**	-0.182	-0.002
	(0.162)	(0.014)	(0.242)	(0.003)
Public investor (1/0)	-0.221**	-0.004	-0.713***	-0.005**
	(0.105)	(0.010)	(0.198)	(0.002)
Investment characteristics				
Ln (Ownership)	0.063	0.001	0.951***	0.008***
	(0.041)	(0.004)	(0.105)	(0.001)
Ln (Holding period)	-0.072	-0.143***	0.760**	0.015
	(0.100)	(0.015)	(0.327)	(0.018)
Board seat (1/0)	0.068	0.006	2.001***	0.005*
	(0.131)	(0.013)	(0.368)	(0.003)
Observations	43,266	43,266	38,289	38,289
Adjusted R-squared	4.9%	19.2%	9.4%	12.1%
Calendar year FE	Yes	Yes	Yes	Yes
Investment firm age FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes

Table 4: Do Firms Receive Different Types of Financing?

Table 4 presents logit estimates from running the regression as defined in Equation 2. The dependent variable $Financing_{i,t}$ is a dummy variable taking value of one if the firm receives an equity injection in year t from a repeat angel investor (Columns (1)–(2)), venture capital (VC) investor (Columns (3)–(4)), corporate investor (Columns (5)–(6)) or foreign investor (Columns (7)-(8). $Informal_i$ is a dummy variable taking the value of one if the firm has been financed by at least one informal investor. $Informal \times External_i$ is an interaction term taking the value of one if the firm has been financed by both informal and external investors. $\ln(Revenues_{i,t})$ is the natural logarithm (+1) of revenues (in Tsd. NOK) in year t. $\ln(Total\ assets_{i,t})$ is the natural logarithm (+1) of total assets (in Tsd. NOK) in year t. $Asset\ growth_{i,t-1;t}$ measures the one-year growth in total assets in year t. $ROA_{i,t}$ is the return on assets and $Leverage_{i,t}$ the leverage of the firm, each measured in year t. $Ownership\ concentration_{i,t}$ is the Herfindahl-Hirschman index (HHI), based on the ownership stakes of all shareholders in year t. $1-yr\ asset\ growth$, $Return\ on\ assets$ and $Leverage$ are winsorized at the 1^{st} and 99^{th} percentiles. A constant term is estimated but suppressed for brevity. Standard errors are clustered at firm level and are reported in parentheses. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively.

	Financing Source:							
	Repeat Angel		Venture Capital		Corporate Investor		Foreign Investor	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Informal (1/0)	-0.075	-2.176***	-0.736***	-3.085***	-0.292***	-1.921***	-0.142	-2.752***
	[0.088]	[0.200]	[0.241]	[0.542]	[0.073]	[0.136]	[0.126]	[0.373]
Informal x External (1/0)		2.881***		2.988***		2.461***		3.339***
		[0.216]		[0.564]		[0.154]		[0.389]
Ln (Revenues)	-0.076***	-0.085***	-0.054***	-0.060***	-0.074***	-0.082***	-0.065***	-0.075***
	[0.008]	[0.008]	[0.017]	[0.017]	[0.007]	[0.007]	[0.011]	[0.011]
Ln (Total assets)	0.505***	0.507***	0.690***	0.689***	0.533***	0.535***	0.618***	0.617***
	[0.018]	[0.018]	[0.034]	[0.034]	[0.015]	[0.015]	[0.024]	[0.024]
1-yr Asset Growth	0.058***	0.059***	0.040***	0.039***	0.064***	0.065***	0.046***	0.045***
	[0.004]	[0.004]	[0.007]	[0.007]	[0.003]	[0.003]	[0.005]	[0.005]
Return on assets	-0.356***	-0.348***	-0.445***	-0.434***	-0.398***	-0.392***	-0.380***	-0.367***
	[0.015]	[0.016]	[0.025]	[0.025]	[0.015]	[0.015]	[0.020]	[0.020]
Leverage	-0.112***	-0.116***	-0.631**	-0.653**	-0.119***	-0.122***	-0.115***	-0.117***
	[0.019]	[0.020]	[0.259]	[0.266]	[0.015]	[0.016]	[0.033]	[0.035]
Ownership concentration	-5.690***	-4.839***	-4.188***	-3.769***	-4.863***	-4.170***	-4.291***	-3.607***
	[0.266]	[0.256]	[0.416]	[0.400]	[0.197]	[0.193]	[0.364]	[0.351]
Observations	67,456	67,456	59,558	59,558	68,140	68,140	64,561	64,561
Pseudo R-squared	28.8%	30.7%	34.4%	35.2%	27.5%	29.2%	28.1%	29.8%
Firm age FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Calendar Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 5: Difference in Firms' Pathways

Table 5 presents logit and OLS estimates from running the regression as defined in Equation 3. The dependent variable is a dummy variable is taking the value of one if the firm does not have an exit event as of 2018 and, thus, is still operating independently (Columns (1)–(2)). The dependent is taking the value of one if the firm has gone bankrupt (Columns (3)–(4)), and, conditional that the firm goes bankrupt, the firm age at the time of the bankruptcy (Column (5)). The dependent variable is taking the value of one the firm has been merged, acquired or gone IPO (Columns (6)–(7)), and, conditional on such a successful exit event, the firm age at the time of it (Column (8)). $Informal_i$ is a dummy variable taking the value of one if the firm has been financed by at least one informal investor. $Informal \times External_i$ is an interaction term taking the value of one if the firm has been financed by both informal and external investors. $\ln(Revenues_{i,T-1})$ is the natural logarithm (+1) of revenues (in Tsd. NOK) and $\ln(Total\ assets_{i,T-1})$ is the natural logarithm (+1) of total assets (in Tsd. NOK). $Asset\ growth_{i,T-1;T}$ measures the one-year growth in total assets, $ROA_{i,T-1}$ the return on assets and $Leverage_{i,T-1}$ the leverage of the firm, each measured in the latest observable year prior to the exit event or 2018, in case the startup is not exited by the end of our sample period. $Ownership\ concentration_{i,T-1}$ is the Herfindahl-Hirschman index (HHI), based on the ownership stakes of all shareholders, measured at the same time. Return on assets, leverage and growth ratios are winsorized at the 1^{st} and 99^{th} percentiles. A constant term is estimated but suppressed for brevity. Standard errors are clustered at firm level and are reported in parentheses. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively.

	No Exit Event		Bankruptcy			Merger/Acquisition/IPO		
	1/0	1/0	1/0	1/0	Firm Age	1/0	1/0	Firm Age
	Logit	Logit	Logit	Logit	OLS	Logit	Logit	OLS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Informal (1/0)	0.433***	0.483***	-0.063	-0.049	0.127	-0.793***	-1.075***	0.176
	[0.044]	[0.052]	[0.049]	[0.056]	[0.108]	[0.070]	[0.095]	[0.226]
Informal x External (1/0)		-0.157*		-0.049	0.317*		0.664***	0.542*
		[0.082]		[0.093]	[0.190]		[0.130]	[0.313]
Ln (Revenues)	-0.013**	-0.013**	0.022***	0.022***	-0.085***	0.001	-0.000	0.030*
	[0.006]	[0.006]	[0.008]	[0.008]	[0.014]	[0.008]	[0.008]	[0.017]
Ln (Total assets)	0.095***	0.096***	-0.289***	-0.288***	0.091***	0.211***	0.209***	0.174***
	[0.011]	[0.011]	[0.014]	[0.014]	[0.027]	[0.014]	[0.014]	[0.031]
1-yr Asset Growth	-0.047***	-0.047***	0.034***	0.034***	-0.052***	0.040***	0.041***	-0.048***
	[0.006]	[0.006]	[0.007]	[0.007]	[0.012]	[0.007]	[0.007]	[0.013]
Return on assets	0.119***	0.119***	-0.078***	-0.078***	0.076***	-0.065***	-0.063***	0.050
	[0.011]	[0.011]	[0.012]	[0.012]	[0.017]	[0.015]	[0.015]	[0.033]
Leverage	0.034***	0.034***	-0.048***	-0.048***	0.064***	0.012*	0.012*	0.064***
	[0.005]	[0.005]	[0.005]	[0.005]	[0.008]	[0.007]	[0.007]	[0.013]
Ownership concentration	0.724***	0.704***	-0.532***	-0.538***	1.024***	-0.576***	-0.506***	0.288
	[0.079]	[0.079]	[0.092]	[0.092]	[0.185]	[0.098]	[0.098]	[0.266]
Observations	17,281	17,281	17,281	17,281	3,282	17,256	17,256	1,987
Pseudo/Adjusted R-squared	19.3%	19.3%	16.5%	16.5%	23.8%	17.6%	17.8%	22.8%
Founding Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 6: Informal Financing and Firm Risk

Table 6 presents Poisson/OLS estimates from running the regressions as defined in Equation 4. The dependent variable $Y_{i,t}$ measures different proxies for firm's risk-taking in year t: return on assets (ROA), measured as net income divided by total assets (Column (1)), intangible assets scaled by total assets (Column (2)), number of total patent applications (Column (3)), and one-year revenue growth (Column (4)). $Informal_i$ is a dummy variable taking the value of one if the firm has been financed by at least one informal investor. $Informal \times External_i$ is an interaction term taking the value of one if the firm has been financed by both informal and external investors. $\ln(Revenues_{i,t})$ is the natural logarithm (+1) of revenues (in Tsd. NOK) in year t. $\ln(Total\ assets_{i,t})$ is the natural logarithm (+1) of total assets (in Tsd. NOK) in year t. $Asset\ growth_{i,t-1;t}$ measures the one-year growth in total assets in year t. $ROA_{i,t}$ is the return on assets and $Leverage_{i,t}$ the leverage of the firm, each measured in year t. $Ownership\ concentration_{i,t}$ is the Herfindahl-Hirschman index (HHI), based on the ownership stakes of all shareholders in year t. $1-yr\ asset\ growth$, $Return\ on\ assets$ and $Leverage$ are winsorized at the 1^{st} and 99^{th} percentiles. A constant term is estimated but suppressed for brevity. Standard errors are clustered at firm level and are reported in parentheses. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively.

	Return on Assets		Intangibles/ Total Assets		Total Patent Applications		1-yr Revenue Growth	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Informal (1/0)	0.073***	0.126***	-0.015***	-0.029***	-0.440**	-1.557***	-0.027	-0.119***
	(0.014)	(0.014)	(0.003)	(0.003)	(0.201)	(0.353)	(0.037)	(0.037)
Informal x External (1/0)		-0.230***		0.062***		1.959***		0.387***
		(0.033)		(0.008)		(0.376)		(0.085)
Ln (Revenues)	0.020***	0.021***	-0.006***	-0.006***	-0.070***	-0.078***	0.218***	0.217***
	(0.002)	(0.002)	(0.001)	(0.001)	(0.014)	(0.015)	(0.007)	(0.007)
Ln (Total assets)	0.127***	0.128***	0.015***	0.015***	0.442***	0.442***	-0.084***	-0.086***
	(0.005)	(0.005)	(0.001)	(0.001)	(0.031)	(0.031)	(0.014)	(0.014)
1-yr Asset Growth	0.025***	0.025***	-0.001***	-0.001***	0.013**	0.013**	0.562***	0.562***
	(0.001)	(0.001)	(0.000)	(0.000)	(0.006)	(0.006)	(0.025)	(0.025)
Return on assets			-0.004***	-0.003***	-0.202***	-0.198***	-0.037**	-0.034**
			(0.000)	(0.000)	(0.021)	(0.020)	(0.015)	(0.015)
Leverage	-0.255***	-0.254***	-0.000	-0.000**	0.022*	0.019	0.001	-0.000
	(0.007)	(0.007)	(0.000)	(0.000)	(0.013)	(0.012)	(0.006)	(0.006)
Ownership concentration	0.534***	0.467***	-0.048***	-0.030***	-2.533***	-1.979***	-0.680***	-0.564***
	(0.040)	(0.040)	(0.008)	(0.008)	(0.431)	(0.420)	(0.097)	(0.099)
Observations	68,131	68,131	68,131	68,131	61,947	61,947	51,731	51,731
Pseudo/Adjusted R-squared	44.8%	44.9%	5.4%	6.0%	26.1%	27.6%	17.9%	17.9%
Mean of dependent variable	-0.36	-0.36	0.06	0.06	0.060	0.060	1.04	1.04
Calendar Year*Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Age*Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 7: Instrumenting Informal Financing: Firm Financing Outcomes

Table 7 Panels A–B present first- and second-stage estimates from running the regressions as defined in Equations 5 (first-stage) and 5 (second-stage). The dependent variable in Column (1) is $Informal\ (1/0)$, a dummy variable taking the value of one if the firm has at least one informal investor. The main independent variable of interest, $Ln\ (Family\ distance)$, our instrument, is the natural logarithm of one + the average distance (in km) between the founder and her family members in the year of incorporation. We measure the distance between family members with geographical coordinates based on the zip codes of their residential addresses. The dependent variable in Columns (2)–(5) is a dummy variable taking value of one if the firm receives an equity injection in year t from a repeat angel investor (Column (2)), venture capital (VC) investor (Columns (3)), corporate investor (Columns (4)) or foreign investor (Columns (5)). Control variables as in Table 4, firm age, calendar year, industry and region fixed effects are included in all stages and specifications. A constant term is estimated but suppressed for brevity. Standard errors are clustered at the firm level and are reported in parentheses. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively.

Panel A: Pooled estimations

	First-Stage Estimate	Second-Stage Estimates			
		Repeat Angel	Venture Capital	Corporate Investor	Foreign Investor
	(1)	(2)	(3)	(4)	(5)
Informal (1/0)		-0.084*	-0.018	-0.189***	0.018
		(0.044)	(0.029)	(0.062)	(0.028)
Ln (1 + Avg family distance)	-0.014***				
	(0.003)				
Observations	65,905	65,905	65,905	65,905	65,905
R-squared	7.4%	4.3%	2.7%	1.2%	4.0%
F-statistic		30.62	30.62	30.62	30.62
Mean of dependent variable		0.04	0.01	0.06	0.02

Panel B: Informal-financed only vs. external-financed only firms

	First-Stage Estimate	Second-Stage Estimates			
		Repeat Angel	Venture Capital	Corporate Investor	Foreign Investor
	(1)	(2)	(3)	(4)	(5)
Informal (1/0)		-0.095**	-0.022	-0.202***	0.011
		(0.043)	(0.028)	(0.061)	(0.028)
Ln (1 + Avg family distance)	-0.014***				
	(0.002)				
Observations	61,879	61,879	61,879	61,879	61,879
R-squared	11.7%	4.4%	2.6%	2.3%	3.7%
F-statistic		31.15	31.15	31.15	31.15
Mean of dependent variable		0.03	0.01	0.06	0.01

Table 8: Instrumenting Informal Financing: Firm Ultimate Outcomes

Table 8 Panels A–B present first- and second-stage estimates from running the regressions as defined in Equations 5 (first-stage) and 5 (second-stage). The dependent variable in Column (1) is $Informal\ (1/0)$, a dummy variable taking the value of one if the firm has at least one informal investor. The main independent variable of interest, $Ln\ (Family\ distance)$, our instrument, is the natural logarithm of one + the average distance (in km) between the founder and her family members in the year of incorporation. We measure the distance between family members with geographical coordinates based on the zip codes of their residential addresses. The dependent variable is a dummy variable is taking the value of one if the firm does not have an exit event as of 2018 and, thus, is still operating independently (Column (2)), is taking the value of one if the firm has gone bankrupt (Columns (3)), and is taking the value of one the firm has been merged, acquired or gone IPO (Column (4)), Control variables as in Table 5, founding year, industry and region fixed effects are included in all stages and specifications. A constant term is estimated but suppressed for brevity. Standard errors are clustered at the firm level and are reported in parentheses. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively.

Panel A: Pooled estimations

	First-Stage Estimate	Second-Stage Estimates		
		No exit event	Bankruptcy	Merger/ Acquisition/IPO
	(1)	(2)	(3)	(4)
Informal (1/0)		0.021	0.140	-0.161
		(0.145)	(0.131)	(0.102)
Ln (1 + Avg family distance)	-0.013***			
	(0.002)			
Observations	16,647	16,647	16,647	16,647
R-squared	4.3%	2.8%	2.3%	1.2%
F-statistic		42.45	42.45	42.45
Mean of dependent variable		0.69	0.19	0.12

Panel B: Informal-financed only vs. external-financed only firms

	First-Stage Estimate	Second-Stage Estimates		
		No exit event	Bankruptcy	Merger/ Acquisition/IPO
	(1)	(2)	(3)	(4)
Informal (1/0)		0.005	0.184	-0.189*
		(0.151)	(0.137)	(0.107)
Ln (1 + Avg family distance)	-0.013***			
	(0.002)			
Observations	15,403	15,403	15,403	15,403
R-squared	6.7%	2.5%	1.3%	1.0%
F-statistic		46.13	46.13	46.13
Mean of dependent variable		0.7	0.19	0.12

Table 9: Instrumenting Informal Financing: Firm Risk

Table 9 Panels A–B present first- and second-stage estimates from running the regressions as defined in Equations 5 (first-stage) and 5 (second-stage). Column (1) corresponds to Column (4), Column (2) to Columns (5)–(6), while Column (3) to Column (7). The dependent variable in Columns (1)–(3) is $Informal\ (1/0)$, a dummy variable taking the value of one if the firm has at least one informal investor. The main independent variable of interest, $Ln\ (Family\ distance)$, our instrument, is the natural logarithm of one + the average distance (in km) between the founder and her family members in the year of incorporation. We measure the distance between family members with geographical coordinates based on the zip codes of their residential addresses. The dependent variables in Columns (4)–(7) are proxies for firm's risk-taking in year t as in Table 6. Control variables as in Table 6, calendar year by industry, firm age by industry and region fixed effects are included in all stages and specifications. A constant term is estimated but suppressed for brevity. Standard errors are clustered at firm level and are reported in parentheses. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively.

Panel A: Pooled estimations

	First-Stage Estimates			Second-Stage Estimates			
				Return on Assets	Intangibles/ Total Assets	Total Patent Applications	1-yr Revenue Growth
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Informal (1/0)				0.009	-0.129**	0.051	-0.622
				(0.270)	(0.059)	(0.250)	(0.645)
Ln (1 + Avg family distance)	-0.014***	-0.014***	-0.015***				
	(0.003)	(0.003)	(0.003)				
Observations	65,895	65,895	49,999	65,895	65,895	65,895	49,999
R-squared	7.7%	7.7%	8.5%	44.3%	-5.4%	1.3%	10.5%
F-statistic				30.34	30.36	30.36	29.42
Mean of dependent variable				-0.36	0.06	0.06	1.03

Panel B: Informal-financed only vs. external-financed only firms

	First-Stage Estimates			Second-Stage Estimates			
				Return on Assets	Intangibles/ Total Assets	Total Patent Applications	1-yr Revenue Growth
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Informal (1/0)				-0.091	-0.142**	-0.108	-0.512
				(0.281)	(0.060)	(0.262)	(0.687)
Ln (1 + Avg family distance)	-0.014***	-0.014***	-0.015***				
	(0.002)	(0.002)	(0.003)				
Observations	61,871	61,871	46,885	61,871	61,871	61,871	46,885
R-squared	11.7%	11.9%	12.6%	44.0%	-4.2%	1.5%	11.2%
F-statistic				30.61	30.73	30.73	28.95
Mean of dependent variable				-0.34	0.06	0.05	1.02

Table 10: Does Wealth Reduce Risk-Taking Frictions?

Table 10 presents Poisson/OLS estimates from running an adjusted regression model defined in Equation 2. The dependent variable $Y_{i,t}$ measures different proxies for firm's risk-taking in year t as in Table 6. Our main variable of interest, $Informal_j$, is a dummy variable taking the value of one if the investment is done by an informal investor (i.e., family member of the founder). $Above\ median\ wealth\ (1/0)$ is a dummy variable taking the value of one if the investor has gross wealth above the median gross wealth of all individual investors in the year of investment t. $Informal \times above\ median\ wealth$ is the interaction term of these two dummy variables. Control variables as in Table 6, calendar year by industry, firm age by industry and region fixed effects are included in all stages and specifications. A constant term is estimated but suppressed for brevity. Standard errors are clustered at firm level and are reported in parentheses. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively.

Panel A: Pooled estimations

	Return on Assets (1)	Intangibles/ Total Assets (2)	Total Patent Applications (3)	1-yr Revenue Growth (4)
Informal (1/0)	0.017	0.001	0.652*	-0.064
	(0.027)	(0.005)	(0.334)	(0.091)
High wealth investor (1/0)	-0.173***	0.020***	0.575***	0.063
	(0.025)	(0.004)	(0.200)	(0.081)
Informal x above median wealth	0.101**	-0.029***	-1.125***	-0.110
	(0.041)	(0.007)	(0.404)	(0.134)
Observations	27,438	27,438	22,279	19,466
Pseudo/Adjusted R-squared	48.7%	6.3%	30.3%	19.5%
Mean of dependent variable	-0.45	0.07	0.042	1.43

Panel B: Informal-financed only vs. external-financed only firms

	Return on Assets (1)	Intangibles/ Total Assets (2)	Total Patent Applications (3)	1-yr Revenue Growth (4)
Informal (1/0)	0.085***	-0.011**	-1.496***	-0.196**
	(0.027)	(0.005)	(0.535)	(0.089)
High wealth investor (1/0)	-0.188***	0.024***	0.782***	0.103
	(0.025)	(0.004)	(0.185)	(0.081)
Informal x above median wealth	0.107**	-0.034***	-0.421	-0.124
	(0.042)	(0.007)	(0.670)	(0.136)
Observations	25,985	25,985	20,739	18,455
Pseudo/Adjusted R-squared	49.0%	6.1%	31.9%	19.6%
Mean of dependent variable	-0.44	0.06	0.037	1.41

Panel C: Informal & external-financed firms vs. external-financed firms

	Return on Assets (1)	Intangibles/ Total Assets (2)	Total Patent Applications (3)	1-yr Revenue Growth (4)
Informal (1/0)	-0.274***	0.054***	1.693***	0.463*
	(0.076)	(0.013)	(0.313)	(0.273)
High wealth investor (1/0)	-0.175***	0.018***	0.677***	0.063
	(0.026)	(0.004)	(0.188)	(0.083)
Informal x above median wealth	0.210**	-0.033*	-1.309***	-0.269
	(0.105)	(0.020)	(0.397)	(0.346)
Observations	21,375	21,375	17,291	15,197
Pseudo/Adjusted R-squared	49.2%	7.3%	31.1%	19.6%
Mean of dependent variable	-0.50	0.07	0.053	1.57

Appendix for:

With a Little Help from My Family: Informal Startup Financing

Table A1: Selection of Firms with Innovation Potential

Table A1 describes the selection process of firms with (high) innovation potential. Panel A begins with all firms newly founded in Norway between 2004 and 2017, from which we remove financial services and real estate firms, newly formed subsidiaries of established companies, holding company structures, and firms in non-innovative industries. Panel B describes the process for identifying the sub-sample of firms that have a high propensity to engage in innovation based on ex ante observable characteristics. Thus, we flag firms based on three alternative characteristics measured at year-end of their year of founding: founded with an English-language name, located in one of the country's four innovation hubs, and having at least one board member who lives far from the city in which the company is located.

Panel A: Full Sample	Firms	% of (A)
Firms (C-corps) founded in 2004–2017	321,548	
- Financial services and real estate firms	-143,496	
- Subsidiaries of established companies	-19,499	
- Holding structures	-6,275	
- Transaction data not matched	-27,930	
- Non-innovative industry	-45,152	
Newly established firms in potentially innovative industries: (A)	**79,196**	100.00%

Panel B: Ex Ante Innovation Flags	Firms	% of (A)
English name	26,452	33.40%
Located in an innovation hub (Oslo, Bergen, Stavanger, Trondheim)	23,887	30.16%
At least one board member who lives far from the firm	14,148	17.86%
At least one ex ante innovation flag:	46,121	58.24%

Table A2: Distance of External Investors

Table A2 provides descriptive statistics of the number of informal and external investors in the firms and the average distance (in km) between the founder and external investors in her firm. We measure the distance between family members with geographical coordinates based on the zip codes of their residential addresses. between the external investors and the founder of the firm.

Firm-Years	External Investor Only			Informal × External Investors			T-test	
	N	p50	Mean	N	p50	Mean	b	se
N informal investors per firm	66,846	0.00	0.00	5,259	1.00	1.25	-1.25***	0.002
N external investors per firm	66,846	1.00	2.78	5,259	2.00	6.39	-3.61***	0.135
Avg distance of external investors	66,846	10.07	73.88	5,259	21.88	103.50	-29.64***	2.482