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The signaling value of legal form in debt financing

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Abstract
We examine if a startup's legal form choice is used as a signal by credit providers to infer its risk to default on a loan. We propose that choosing a legal form with low minimum capital requirements signals higher default risk. Arguably, small relationship banks are more likely to use legal form as a screening device when deciding on a loan. Using data from Orbis and the IAB/ZEW Start-up Panel for a sample of German firms, we find evidence consistent with our hypotheses but inconsistent with predictions of several competing explanations, including differential demand for debt or growth opportunities.

Key words: legal form, minimum capital requirements, signaling, access to debt, financial constraint
JEL codes: D80; G30; M48

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1 Introduction

Formal debt financing is arguably the most important source of external financing for startups (Cosh et al., 2009; Robb and Robinson, 2014). The ability to attract debt financing has also been linked to longer survival time, and higher revenues and employment (Cole and Sokolyk, 2018; Robb and Robinson, 2014). Furthermore, unlike equity financing, it does not require giving up ownership control (Ueda, 2004) and can be less costly after tax (Graham, 2000). Despite these benefits, many startups encounter difficulties in obtaining external debt financing due to informational opacity and the absence of an observable history of performance that are characteristic to new ventures (Amit et al., 1990; Cosh et al., 2009; Sanders and Boivie, 2004; Schmalz et al., 2017; Villanueva et al., 2012; Wiklund et al., 2010).

In the absence of a proven track record, an important question for entrepreneurs is how they can signal their company's quality to outside lenders (Cassar et al., 2015; Connelly et al., 2011). A seminal paper by Leland and Pyle (1977) shows that one such signal can be the entrepreneur's own investments. More recently, scholars have found that, for example, founders' human capital (Ko and McKelvie, 2018; Matusik et al., 2008), the use of patents (Conti et al., 2013a,b; Hsu and Ziedonis, 2013), government grants (Islam et al., 2018), or third party affiliations (Plummer et al., 2016) can serve as valuable signals (see Colombo (2021) for an overview).

We posit that entrepreneurs can make use of a different signal, namely the choice of legal form at startup. Selecting a legal form is a highly visible and important choice that all new business owners must make at the start of their venture. In addition, it provides a soft signal of the entrepreneur's own investments within the company because different legal forms have different minimum capital requirements. This is in contrast to many of the signals considered by prior work, which do not represent a choice that is available to all new ventures. The legal organization of a firm may thus act as a valuable signaling strategy for startups in the early stages of their life cycles, as other signals are

not available (yet). In addition, the impact of the legal form choice on firms' access to formal debt financing may also have consequences for entrepreneurs' access to other types of financing since debt itself serves as a reliable signal for outside equity investors (Epure and Guasch, 2020).

In this paper, we argue that choosing a legal form with higher paid-in capital requirements signals low credit default risk to outside lenders thereby alleviating concerns of adverse selection.[1] This is because low-risk types face a higher marginal rate of substitution between a loan's interest rate and size of the collateral, but relatively lower opportunity costs and expected reputational costs associated with default. Importantly, we are not merely stating that firms with less paid-in capital face higher financing constraints because they have less equity (e.g., Leland and Pyle (1977)). We hypothesize that firms which choose a legal form with lower paid-in capital face disproportionately more difficulties in attracting the necessary external funding (i.e., an effect driven due to the legal form choice itself; conditional on having the same amount of equity, among other founder and firm characteristics). This effect occurs because the choice of legal form is used as a screening device by credit providers in their lending decision.

Furthermore, we hypothesize that the relation between legal form and the access to outside debt is stronger in the case of small relationship lenders. Large transactional lenders benefit more from technological advances and deregulation (e.g., Berger and Black (2011)) which provide them with other reliable instruments to assess creditors' default risk. Therefore, large lenders are less likely to rely on a startup's legal form as a signal of quality. We thus expect that the difference in financing constraints induced by the legal form choice depends on the type of credit provider that the firm is contracting with.

Documenting that the legal form choice affects firms' financing constraints would have important implications for entrepreneurs, especially in light of the recent paid-in capital reforms that occurred across the globe (World Bank, 2020). Over the last two decades, more than 100 countries have lowered the minimum capital requirements to set

[1]The paid-in minimum capital requirement reflects the amount that the entrepreneur needs to deposit in a bank when, or shortly after, incorporating a business. Traditionally, its primary legislative purpose has been to protect creditors from new firms that are set up carelessly (World Bank, 2020).

up a limited liability company (LLC). Many countries did so by allowing entrepreneurs to choose for a new type of legal form, which has the same perks and benefits as a regular LLC, but with no statutory minimum capital (e.g. in Croatia, Denmark, Germany and Luxembourg).[2] The goal of these legislative changes was to spur entrepreneurship. However, as an unintended consequence, entrepreneurs that opted for a LLC with less paid-in capital might face increased financing constraints.

To test our predictions, we make use of a reform in capital requirements that occurred in Germany. Since 2008, entrepreneurs in Germany can choose a new type of legal form when establishing a limited liability company (LLC), the "Unternehmergesellschaft (haftungsbeschränkt) – UG". This new legal form is commonly referred to as the "mini-LLC" or "low-capital LLC". It is similar in almost all dimensions to the regular (high-capital) LLC, the "Gesellschaft mit beschränkter Haftung – GmbH". However, the low-capital alternative does not require the regular minimum paid-in capital of 25,000 euro at start up. An entrepreneur can choose any amount between 1 euro and 24,999 euro to setup such a low-capital LLC. Importantly, firms are required to put the legal form suffix (UG or GmbH) at the end of the company name, which makes it straightforward for outside investors to infer their type. These institutional features are similar to other countries that recently introduced a new LLC with lower capital requirements.[3] The setting thus allows us to nicely identify the signaling value of legal form, because we can compare firms with similar characteristics (e.g. firms with capital of 24.999 euro against firms with 25.000 euro).[4]

[2]Other countries, such as Austria, United Kingdom and France, have completely abolished or reduced the minimum capital requirements for all LLCs. We discuss these differences in legislation, and its impact on our results in more detail in section 3.

[3]In Denmark, one can set up a low-capital LLC (IVS), which require paid-in capital between 1 to 49.999 Dkr. A regular high-capital LLC (ApS) in Denmark requires at least 50.000 Dkr in paid-in capital. In Croatia, a low-capital LLC (j.d.o.o.) requires paid-in capital of at least 10.00 HKR, while a high-capital LLC (d.o.o.) requires at least 20.000 HKR in paid-in capital. In Luxembourg , a low-capital LLC (SARL-S) requires paid-in capital between 1 to 12.000 EUR, while a high-capital LLC (SARL) requires at least 12.000 EUR in paid-in capital.

[4]As an alternative setting, one could compare (unlisted) Publicly Limited Companies (PLC) with LLCs. For example, in the UK, one can found a (unlisted) Publicly Limited Company (PLC), which has a minimum capital requirement of 50.000 pounds. In contrast, a private LLC in the UK has no capital requirements. Next to capital requirements, however, several other differences exist between these legal forms (e.g. minimum number of founders and financial statement disclosure requirements), which would leave room for alternative explanations of our findings in such a setting.

An additional useful feature of the German setting is that we can make use of two rich data sources to examine firms' financing constraints: (1) the historical firm records from Orbis, which contain financial data about the full population of German LLCs, and (2) detailed survey data from the IAB/ZEW Start-up Panel. The survey data complements the administrative records with information about firms' financing frictions, as well as a wide variety of information about the founders and their firms.

Our results show that low-capital LLCs are 2 percent less likely to obtain debt, and, conditional on obtaining debt, have approximately 52 percent less debt compared to high-capital LLCs. Importantly, in our analyses we adjust for differences in capital and growth opportunities, and further control for several other firm, industry, and founder characteristics, including other signals identified by prior work. Furthermore, we find that low-capital LLCs are more likely to indicate that they experience financing constraints, in particular bank financing constraints. We do not find that low-capital LLCs are less likely to state that they are not in need of external funding. These findings are in line with our signaling explanation, but inconsistent with the idea that low-capital LLCs have a lower demand for external funding.

Consistent with our prediction that small banks rely more on firms' legal form as a signal of their default risk, we find that in regions with a higher share of small relationship banks low-capital LLCs obtain less debt. In addition, we find that in these regions low-capital LLCs are more likely to indicate that they are financially constrained. Taken together, these results lend support to our predictions that especially smaller credit providers limit the supply of debt to low-capital LLCs due to concerns of default risk, adjusting for a variety of potentially confounding factors.

Since the founder's choice of legal form is not random, however, we cannot rule out that there may be unobserved variables influencing the relation between legal form and debt. To mitigate such concerns, we provide an array of robustness tests. First, we instrument the legal form choice with the founder's nationality. We posit this is a valid instrument because reducing low minimum capital requirements to setup a business at-

tract foreign entrepreneurs from countries where minimum capital requirements are higher (Becht et al., 2008). In addition, we do not find that foreign founders are able to attract significantly less or more debt. The outcomes of these IV analyses are similar to the OLS estimates obtained earlier.

Second, we make use of a Regression Discontinuity Design (RDD), estimating a local average treatment effect of legal form around the equity threshold that defines low-capital LLCs and high-capital LLCs. In particular, we compare low-capital LLCs that have accumulated equity close to the 25,000 euro threshold with high-capital LLCs that have equity just above the threshold. Hence, firms are on average very similar on a variety of characteristics, including equity, but, by definition, they differ in terms of legal form. Our RDD shows that there is a stark discontinuity in debt financing and degree of financing constraints, in line with our prior results.

Third, we exploit the fact that low-capital LLCs change their legal form once they reach the 25,000 euro minimum capital requirement. This allows us to compare low-capital LLCs that switch to a high-capital LLC with companies that already opted for high-capital LLC at startup. In doing so, we isolate the impact of changing legal form net of changes in access to finance that would have occurred otherwise and (unobserved) time-invariant firm characteristics. The results show that former low-capital LLCs increase their odds of obtaining outside financing once they turn into a high-capital LLC. This confirms the notion that changing to a high-capital legal form signals higher creditworthiness.

Finally, we provide further evidence that the results are driven by the legal form itself, and not merely by (changes in) the amount of paid-in capital. To do so, we exploit the reduction of paid-in capital requirements in Austria in 2014. For reasons similar to Germany, Austria modified its private corporate law by lowering the paid-in capital requirements for all newly established LLCs. Hence, unlike in Germany, the reform did not introduce a new legal form. If our results are driven by changes in paid-in capital rather than the legal form itself, we would expect a similar increase in debt financing for Austrian firms that are founded with lower minimum capital and subsequently increase

paid-in capital to the old minimum capital requirements. This is not the case. In the absence of legal form as a signal of default risk, it appears that outside investors mainly rely on a firm's current level of equity and do not take into account the level of paid-in capital at startup.

Our findings have implications for nascent entrepreneurs and policy makers. We propose the legal form of the firm as one mechanism for entrepreneurs to communicate their quality to outside investors and mitigate the liability of newness. This strategy will be most useful when applying for credit at small relationship banks. Furthermore, several scholars have pointed out that countries with low regulatory requirements have attracted a substantial amount of new businesses, causing regulatory competition among countries (Becht et al., 2008; Braun et al., 2013). The pool of new businesses that opt for a legal form with low capital requirements, however, also contain a non-negligible group of firms that would have set up a business anyway, but with a different legal form (see also Braun et al. (2013)). Our findings indicate a potential downside of this 'deregulation race': it creates a risk for some of these firms to not being able to obtain the necessary debt financing, which ultimately limits their growth potential.

The rest of the paper proceeds as follows. In Section 2, we build our theoretical argument. Sections 3 and 4 discuss our setting and data. Section 5 explains how we estimate the relation between legal form and debt financing. Sections 6 and 7 presents the results and robustness checks. Section 8 concludes.

2 Theory

Although self-financing of entrepreneurial ventures is prevalent, a majority of entrepreneurs solicits external finance as they only have limited internal funds (Berger and Udell, 2003; Fairlie and Krashinsky, 2012; Gartner et al., 2012). Hence, acquiring external financing is critical to startup performance. Among the different financing sources, prior work has found that startups rely substantially more on formal debt financing than on equity

financing and inside debt financing from friends and family (Cosh et al., 2009; Robb and Robinson, 2014). Furthermore, the use of external business debt at the initial year of operations has been linked to superior firm outcomes years later (Cole and Sokolyk, 2018).

Despite this need for outside investments, many startups fail to borrow sufficient capital at reasonable rates (Cosh et al., 2009; Schmalz et al., 2017). Unlike established firms, startups lack formal or public records and a proven track record (Santos and Eisenhardt, 2009; Villanueva et al., 2012), and have insufficiently established relationships with customers and suppliers (Aldrich and Auster, 1986) to show that their value propositions are viable and the capabilities of the management team. As such, entrepreneurs will have better information on the firm's expected future performance and, consequently, on its ability to repay loans (Sengupta, 1998). Collecting this information is very costly for lenders, particularly in proportion to the amounts borrowed (Ang et al., 1991). In this case, information asymmetry between entrepreneurs and prospective investors may lead to adverse selection where entrepreneurs with a high credit risk claim to be of high quality. This problem may also be aggravated when there is perfect competition among lenders, and the outcomes of costly screening activities are public information. The resulting free-riding problem lowers external investors' incentives to engage in screening efforts to discover entrepreneurs' true quality (Parker et al., 2018). Consequently, potential investors will be less inclined to provide startups with the necessary resources (Sanders and Boivie, 2004; Wiklund et al., 2010).

Signaling theory (Spence, 1973) has been widely used to understand how entrepreneurs credibly convey information about the underlying unobservable quality of their firm through observable actions and attributes to overcome these asymmetric information problems (Colombo, 2021; Connelly et al., 2011). Since the seminal work by Leland and Pyle (1977), scholars have investigated the signaling role of patenting (Conti et al.,

2013a,b), third-party affiliations (Bapna, 2019; Colombo et al., 2019; Ko and McKelvie, 2018; Plummer et al., 2016; Pollock et al., 2010), choice of accounting methods (Cassar et al., 2015), eponymy (Belenzon et al., 2017), or founders' human capital (Ko and McKelvie, 2018) amongst others.

Within this literature, few papers have paid attention to the possible signaling role of the choice to incorporate a venture, and, conditional on incorporation the choice of legal form. Yet, the legal organization of a firm may act as a valuable signaling strategy for startups in the early stages of their life cycles as other signals are not available (yet). With regards to the signaling value of incorporation, an early study by Chamley (1983) argues that when there are no costs involved in incorporating a venture, the least able entrepreneurs will choose to incorporate while the able ones do not. The mechanism behind this separating equilibrium is that only the more able types believe the risk of losing their personal assets this way is sufficiently low so that they want to forego the insurance aspect of limited liability to obtain better terms for their borrowings. However, empirical evidence by Cassar (2004) and Storey (1994) shows a positive relationship between incorporation and bank financing. This may suggest that founders' willingness to incur statutory audit costs and to make information on the business public acts as a signal of credibility and an indicator of growth potential.

2.1 Legal form as a signal of default risk

This paper postulates that similar to the incorporation choice, outside lenders also rely on a new venture's choice of legal form to infer its underlying risk.[5] An important distinction between different types of legal forms is the amount of paid-in capital that is required to found a company.[6] This is a crucial aspect because founders are liable for the amount

[5]The notion of risk can be interpreted in many different ways. For the purposes of this paper, risk refers to a firm's likelihood to pay back its loans.

[6]Many countries have a public and private limited liability legal form. Almost all countries require more paid-in capital for founding a public firm (e.g. UK, France, Germany, Spain, Italy, Sweden, Finland, Denmark, Austria, Norway, among others). For example, in the UK, one can found a (unlisted) Publicly Limited Company (PLC), which has a minimum capital requirement of 50.000 pound. A private LLC in the UK has no capital requirements. Next to capital requirements however, several other differences exist between these legal forms (e.g. minimum number of founders and financial statement disclosure requirements).

of paid-in capital in case of bankruptcy. In this paper, we argue that choosing a legal form with high-capital is a credible signaling strategy for low-risk firms when 1) the legal form is observable to lenders, and 2) low-risk firms do not have an incentive to "pretend" to be a high-risk firm by choosing the low-capital form, and vice versa (i.e., incentive compatibility constraints) (Connelly et al., 2011; Kirmani and Rao, 2000; Spence, 1973).

First, the legal form can easily be inferred from the company's legal documents (cf. also Section 3). Second, models of the use of collateral as a signaling mechanism in credit markets with imperfect information (Besanko and Thakor, 1987a,b; Bester, 1985, 1987; Boot et al., 1991; Chan and Thakor, 1987) argue that low-risk firms will select credit contracts with lower interest rates but higher collateral requirements than high-risk types. This is because low-risk types have a higher marginal rate of substitution between a loan's interest rate and size of the collateral; low-risk types are more inclined to accept a higher increase in collateral for a given reduction in interest payments than high-risk types. High-risk types know they are more likely to default, thereby avoiding having to repay the loan but losing their collateral. Similarly, when the interest rate is fixed but loan size varies, high-risk ventures will be more likely to pick a low-capital legal form even though this implies they will receive smaller loans than low-risk entrepreneurs. Because the legal form, unlike the exact amount of available capital, is easily observable, lenders will likely rely on the legal form choice to infer the default risk of a firm.

Relatedly, because entrepreneurs forego alternative investment opportunities for the amount of paid-in capital invested in the firm, low- and high-risk types face differing opportunity costs of founding a high-capital firm. Since the expected returns for low-risk projects are greater due to the lower likelihood to default, ceteris paribus, it is relatively less costly for low-risk types to invest the required paid-in capital in the firm. This is similar to Leland and Pyle (1977) who argue that when entrepreneurs retain a significant ownership share in their firm this signals high expected future cash flows due to the opportunity cost of equity ownership.

While these arguments revolve around individual preferences and opportunity costs, there may also be a collective component involved. In particular, when their individual default risk is imperfectly observed, entrepreneurs choosing a high-capital legal form may benefit from a positive collective reputation of high-capital firms (Levin, 2009; Negro et al., 2015; Tirole, 1996). In turn, this induces them to be more committed to a successful outcome because the reputational cost of defaulting for this group is high, which may lead to a stigma of failure (Landier, 2005). On the contrary, entrepreneurs choosing a low-capital form may inherit a bad reputation, which reduces their incentive to avoid default, because investors believe failure within this group is common and not very informative. In this sense, entrepreneurs in the low-capital group are stuck in a 'bad reputation trap' due to the self-fulfilling nature of expectations (Coate and Loury, 1993). From this perspective, there is another reason for why choosing a high-capital legal form is more costly for high-risk entrepreneurs: when lenders respond more negatively when a high-capital firm defaults (by not offering entrepreneurs a loan in the future when they would found a new venture, for example), high-risk types have a higher likelihood to incur this reputational cost.

Combined, these characteristics suggest the existence of a separating equilibrium, in which default risk is negatively related to the likelihood of choosing a high-capital legal form, rather than a pooling equilibrium in which outside investors would not be able to distinguish between entrepreneurial firm types.

2.2 The role of lender type

So far, we have argued that we expect high-capital startups to be more likely to obtain outside debt financing due to the signaling value of legal form. However, our baseline hypothesis can be more pronounced depending on the type of lender. The heterogeneity in lender types and their relationship to firm outcomes has received considerable attention in the finance literature. In particular, the conventional view is that relationship lending is the obvious - if not the only - way to cope with the informational opacity surrounding new ventures in contrast to transactional lending. Relationship lending can mitigate

opacity issues because it relies mainly on "soft" information acquired by lenders through continuous, personalized, direct contacts with startups, their founders, and the local community in which they operate (Berger and Udell, 2006). Much of the early literature therefore suggested that small banks are more capable of serving young, small firms because of the difficulties associated with quantifying and transmitting soft information through the communication channels and hierarchy of large organizations (Berger et al., 2005; Berger and Udell, 2002; Cole et al., 2004; Stein, 2002).

More recently, however, a number of studies have challenged the conventional wisdom and indicate that due to technological advances and deregulation large, multimarket, and nonlocal banks have a comparative advantage in serving small, young firms using hard-information lending technologies (Berger et al., 2014; Berger and Black, 2011; Berger and Udell, 2006; De la Torre et al., 2010). In particular, some of the technologies applied to lending to small, young ventures benefit from economies of scale and scope. For example, the effectiveness of credit scoring models that rely on statistical properties to assess risk goes up with the number of clients and loans (De la Torre et al., 2010). Similarly, Hughes et al. (2019) provide evidence that large banks are more efficient at credit evaluation and monitoring than their small counterparts. In fact, they find that larger banks experience lower rates of loan default even though they lend to riskier firms. Consistent with these predictions, Jagtiani et al. (2016) find that small banks accounted for only 43 percent of small business loans in 2015 in the US, compared to 77 percent in 1997.

Another reason for why small banks that rely on relationship lending are at a disadvantage when it comes to risk assessment of startups is that the signaling value of soft information is likely to be low. This is because a valuable signal needs to be verifiable by outsiders (Aghion and Tirole, 1997; Baker et al., 2002; Hart, 1995). For a signal to be verifiable, the interpretation of the signal by the sender and the receiver must be the same. This is a characteristic of hard information. By contrast, soft information is pri-

vate and not verifiable as it involves a personal assessment and depends upon its context, neither of which can be easily captured and communicated. Hence, it is likely that the information acquired by small banks is of a more noisy nature than the hard information collected by large banks.

Taking all arguments together, we expect that large lenders that use transactional lending technologies are better able to assess the default risk of startups based on hard information. This implies that we expect large lenders to rely less on a firm's legal form as a signal of default risk since they have other reliable instruments at hand to reduce the frictions stemming from information asymmetries between entrepreneurs and prospective investors. In other words, we expect that small lenders are less likely to provide loans to low-capital firms than large lenders.

3 Legal Background

To test whether the legal form choice can serve as a screening device for credit providers, we make use of a law change that occurred in Germany. The German MoMiG[7] reform in 2008 introduced the "Unternehmergesellschaft (haftungsbeschränkt)" (UG) as a second option of a LLC besides the already existing "Gesellschaft mit beschränkter Haftung" (GmbH). The new legal form, UG, is often called in Germany "the low-capital LLC" or "mini-LLC". Throughout the paper, we will label firms that operate under the legal form GmbH as "high-capital LLCs", and firms that operate under the new legal form UG as "low-capital LLCs".

The main reason for the reform was increasing pressure due to the liberalization of regulation in terms of the country of incorporation within the EU. Several landmark rulings by the European Court of Justice (ECJ) between 1999 and 2003 justified the incorporation principle by which firms incorporated in one EU Member State are free to do business in any other Member State.[8] Historically, most EU Member States, such

[7] Gesetz zur Modernisierung des GmbH-Rechts und zur Bekämpfung von Missbräuchen (MoMiG), 23 October 2008, BGBl I.

[8] Centros Ltd v. Erhvervs-og Selskabsstyrelsen, Case C-212/97 [1999] ECR I-1459; Überseering BV v. Nordic Construction Company Baumanagement GmbH, Case C-208/00 [2002] ECR I-9919; Kamer van Koophandel en Fabrieken voor Amsterdam v. Inspire Art Ltd., Case C-167/01 [2003] ECR I-10155.

as Germany, Austria and France, followed the real-seat principle by which firms had to incorporate where they operate (Gerner-Beuerle et al., 2018). Following the European liberalization, firms took advantage of legal arbitrage opportunities by increasingly incorporating in the UK due to lower minimum capital requirements and setup costs for limited liability firms (Becht et al., 2008). However, since countries aim to control the corporate law on firms operating in their jurisdiction this caused a defensive regulatory competition in European corporate law in response to the liberalization (Gelter, 2019).

Germany also reacted on the European liberalization, and implemented the MoMiG reform in 2008. The reform aims to mitigate the flow of incorporations to other Member States by offering a new limited liability firm with lower incorporation costs. The MoMiG reform has been perceived as a great success. It is believed that it has been able to largely stop the practice of German entrepreneurs establishing a business under UK law (Mock, 2016). Moreover, the popular press documents that the reform has led to a sharp increase in entrepreneurial activity within Germany (Anger, 2018; Mathez, 2013). Roughly 5 years after the reform, 10 percent of all LLCs were operating as a low-capital LLC (Mock, 2016). Research from Braun et al. (2013) also suggests that the reform led to a net-increase in entrepreneurship, however, they also find that there was a decrease of 3 percent in regular (high-capital) LLC firms shortly after the reform.

We use historical records of the Orbis database to confirm this finding. Figure 1 and the corresponding statistics in Table 2 show that after the MoMiG reform, there are over 15 percent more LLCs established within Germany on a yearly basis between 2003 and 2010. When focusing solely on high-capital LLCs, however, we find that there is a decrease of 7.54 percent. Comparing this to data from neighboring country Austria (which did not implement a change in paid-in capital during this period), we can estimate how many high-capital LLCs in Germany would have been established if the reform would not have taken place. Our results show a very similar trend in terms of number of established firms between Germany and Austria before 2008. However, we do not observe the same decrease in high-capital LLCs in Austria after the MoMiG reform. Using this data, we are able to estimate the number of LLCs that would be established if MoMiG would not have been

implemented. The results suggest that there is a substitution effect of 33.69 percent.[9] In other words, roughly one out of three low-capital LLCs would have been established anyway, but under a high-capital LLC legal form. Overall, these findings confirm prior observations that the reform seems to have led to an overall increase in entrepreneurship, but there appears to be also a substantial substitution effect from high- to low-capital LLCs.

There are several differences between high-capital LLCs (i.e. GmbH) and the newly introduced low-capital LLC (i.e. UG) that make them a suitable empirical setting to test our theoretical predictions. First, setting up a low-capital LLC only requires 1 euro of paid-in capital instead of the regular 25,000 euro. Hence, the introduction of the low-capital legal form lowered potential financial barriers for setting up a company with limited liability. In addition, low-capital LLCs are required to transfer one quarter of the annual surplus to the retained earnings. Those accumulated reserves can only be used to increase paid-in capital or balance net losses of the current year and the previous year. To avoid the mandatory accumulation of retained earnings, low-capital LLCs must increase paid-in capital to 25,000 euro, which allows them to then automatically change their legal form to a high-capital LLC. Although low-capital LLCs are not legally required to change their legal form, the limited use of their profits is a strong incentive to change the legal form to GmbH once retained earnings exceed the capital requirements for GmbHs. Moreover, both legal forms have the same legal foundation, which make the switch in legal form simple and does not require costly administrative work, as would be the case with other legal form conversions. This is also confirmed in our dataset, where we find that approximately 99 percent of low-capital LLCs switched legal forms, once they were allowed to do so.

[9]The substitution effect is calculated as follows: $33.69\% = (-7,54\% + 1,84\%)/(15,08\% + 1,84\%)$. Note that this percentage only reflects the substitution that would occur between high and a low-capital LLC. The increase in newly established LLCs of 15.08 percent in Germany might also be driven by a substitution effect due to a lower likelihood to choose for other legal forms such as an unlimited liability company (ULC). The Orbis database, however, only includes data of firms that are required to make their financial statements publicly available, and therefore does not include any data about ULCs.

Importantly, the company is required to include the suffix "UG" instead of "GmbH" at the end of the company's name. This requirement makes it relatively easy for outsiders to differentiate between the two types of legal forms because companies are required to mention the full name on their corporate website, as well as on all contracts they sign. This also implies outside credit providers can infer a firm's level of paid-in capital simply by looking at its name. This is a necessary condition for legal form to be an effective signal (cf., Section 2). Other regulations, such as taxation, are the same for both legal forms.

4 Data and Descriptive Statistics

We use two distinct samples. Our first sample is based on historical records of the Orbis database provided by Bureau van Dijk (BvD).[10] The database contains financial statement information for full population of German limited-liability companies. We use this database to identify low and high-capital LLCs, and construct a range of external financing measures and firm-level control variables using financial statement data. Our second sample is extracted out of the IAB/ZEW Start-up Panel, a firm-level database accessible at the research center of ZEW (IAB and ZEW, 2022). The Start-up Panel contains detailed survey data about a representative set of start-ups operating in Germany. The survey data provides us with more detail information about firms' financing frictions, as well as a wide variety of information about the founders and their firms.

[10] Orbis historical database version February 2019.

We start our data gathering process by downloading all relevant information from the Orbis database. We gather historical names and financial information for German limited liability firms that were founded after 2008 (i.e. the first year where firms could choose to establish a low-capital LLC). The historical names of firms, which contain the required legal form suffix, allow us to identify firms' legal forms over time.[11] We manually cleaned the firms' names and historical legal forms, which allow us to identify if a company was founded as a low-capital LLC or a high-capital LLC.[12]

In the Orbis database, we observe a few high-capital LLCs that are much larger than low-capital LLCs. Prior literature shows that smaller firms are more financially constrained (Hadlock and Pierce, 2010), and firm size affects growth (Czarnitzki and Delanote, 2013). Thus, we restrict the sample to small startup firms to make the group of low-capital and high-capital LLCs more comparable.[13] Furthermore, we trim all continuous financial variables at the 1 percent level on each side of the distribution to eliminate possible outliers. Last, we retrieve data from Orbis-IP, which provides information on patent applications of firms in the Orbis database, and use the information on filed patents to calculate firms annual patent stock.[14] Table 3 displays the changes in sample size when applying the above restrictions.

[11]Specifically, we parse all firm names for common variations and abbreviations of legal form suffixes. Additionally, we validate the obtained legal forms with balance sheet information listing firms' paid-in capital. As mentioned in section 3, low- and high-capital LLCs (i.e. firms with the legal form UG and GmbH, respectively) have different capital requirements. Low-capital LLCs have less than 25,000 euro capital whereas high-capital LLCs must have equal or more than 25,000 euro capital. For cases in which paid-in capital does not correspond with the legal form that we observe in the historical firm names, we manually looked up their legal form mentioned in publicly available financial statements on the official section of the German Federal Gazette (see https://www.bundesanzeiger.de/), and adjust the name and legal form accordingly in the database. The procedure implies that we also exclude firms with missing, zero or negative capital.

[12]In addition, we are able to identify the year when a firm switches from a low-capital LLC to a high-capital LLC and surpasses the 25.000 capital requirement threshold. We can thereby identify three different groups: (1) firms that switch from a low-capital to a high-capital LLC; (2) firms that always operate under the low-capital LLC legal form; (3) and firms that are always incorporated as a high-capital LLC. Data about firms that switch legal form will be used in a difference-in-differences specification in section 7.3.

[13]We use the German Accounting Directive Implementation Act (BilRUG) definition of small firms and only include firms with 50 or less employees and/or 4,840,000 euro total assets and/or 9,680,000 euro in sales to our sample. Less than 1 percent of low-capital LLCs are dropped when imposing these restrictions.

[14]We account for annual depreciation rate of 15 percent as common in the literature (see e.g. Cuneo and Mairesse (1983)).

Table 4 shows the summary statistics for low and high-capital LLCs. In our main sample, we observe 136,636 high-capital LLCs and 33,844 low-capital LLCs that were incorporated between 2008 and 2017. Data from the Orbis database already reveal a couple of notable differences between low and high-capital LLCs. First, there appear to be relatively small differences in access to debt; 63 (54) percent of high-capital LLC firm-year observations have long-term (short-term) debt compared to 58 (52) percent for low-capital LLCs. However, there are substantial differences in the level of debt that they receive. On average, high-capital LLCs report to have long-term debt of 244,444 euro compared to only 43,296 euro for low-capital LLCs. Thus, most of the differences in debt between the groups are on the intensive rather than the extensive margin. The descriptive statistics also reveals that the observed differences in debt levels are correlated with differences in terms of capital, accumulated profit, size, age and patents, and indicate the need to control for these characteristics in the regressions.

In our second sample, we focus on data from the IAB/ZEW Start-up Panel. The subsample includes 2,272 high-capital LLCs and 355 low-capital LLCs. In comparison to the Orbis sample, the IAB/ZEW Start-up sample has relatively few observations. However, the main advantage is that we have much more detailed information about our target population, such as information about founders' prior work experience, education, and gender, as well as more detailed information about firms' characteristics and their external financing constraints.

Table 5 shows the summary statistics for this subsample of firms that filled in the survey and which we could match to the Orbis database. The composition of firms is highly comparable to our Orbis sample. If anything, firms seem to be, on average, slightly larger in our subsample compared to the Orbis sample (Table 4). More important, the survey information provides interesting insights into additional differences between both groups: 23 percent of low-capital LLCs state that they are financially constrained compared to only 18 percent of high-capital LLCs. In addition, high-capital LLCs are 12 percent more likely to indicate that they are not in need of external financing. This suggests that banks seem to be less willing to provide high levels of debt to low-capital LLCs, although low-

capital LLCs have a higher demand for external funding. The data in the Start-up Panel further reveal that high-capital LLCs have on average more investments, R&D expenses, and are more likely to export. In addition, the founders of a low-capital LLC have less likely set up a business prior to this venture, are less educated, and were more likely unemployed before they started the business. Hence, a firm's legal form choice seems to be correlated with several founder and firm characteristics. Our survey data allows us to control for these potentially confounding factors in subsequent analysis.

5 Relationship between Legal Form and Debt Financing

The discussion in Section 2 argues that firms that choose a legal form that requires less paid-in capital will be perceived to be of lower quality by credit providers. In turn, low-capital LLCs are less likely to obtain the necessary external investments compared to high-capital LLCs, conditional on their level of creditworthiness (i.e. keeping paid-in capital among other characteristics constant, low-capital LLCs will be perceived to have a higher credit risk). To empirically examine this, we estimate the following model using OLS:

$$y_{it} = \beta_1 Low - Capital\, LLC_i + \beta_2 X_{it} + \delta_t + \eta_s + \varepsilon_{it} \tag{1}$$

where y_{it} is one of the following variables that measure firms' financing frictions: our first measure is a firm's total amount of outstanding debt. This variable captures the total amount of short- and long-term debt that a firm need to pay back to creditors (i.e., bank- and trade credit). Second, we split total debt into a firm's long- and short-term debt: $Access\, to\, Long - Term\, Debt$ is a dummy variable equal to one if a firm has debt outstanding in year that is due after at least one year, and zero otherwise. $Access\, to\, Short - Term\, Debt$ is a dummy variable equal to one if a firm has debt outstand-

ing that is due within one year. $Log(Long-Term\,Debt)$ and $Log(Short-Term\,Debt)$ is the log of a firm's long-term and short-term debt, conditional on having such type of debt. These variables allows us to assess if the differences are driven by the extensive or intensive margin of debt.[15]

Third, we make use of a set of financing constraints variables that are available in the IAB/ZEW Start-up Panel. This set of variables allow us to examine if differences in debt between low- and high-capital LLCs are driven by differences in the supply of debt (e.g., firms are unable to obtain the necessary external debt to finance their investments opportunities), or alternatively by differences in the demand for external debt (e.g. firms do not need debt because of lower growth opportunities). Our first financing constraint measure is a dummy variable equal to one if the firm states that it experiences external financing constraints ("$Financing\,Constraints$"). Our second measure is a dummy variable equal to one if the firm is not able to acquire the necessary external funds from banks to finance their investment opportunities ("$Bank\,Financing\,Constraints$"). A third measure is a dummy variable equal to one if a firm is not externally financially constrained because they do not need external financing ("$No\,Funds\,Needed$").

Our main variable of interest is $Low-Capital\,LLC_i$, a dummy variable equal to one if a firm is operating under a legal form with low-capital requirements (i.e., UG), and zero if it is operating under a legal form with high-capital requirements (i.e., GmbH). Hence, the parameter of interest β_1 measures the difference in debt and financing constraints between low-capital and high-capital LLCs. Importantly, we also include X_{it}, which is a vector of time varying firm-level characteristics that influence both a firm's legal form and its access to external funding. Specifically, we control for firms' total amount of capital and retained earnings, thereby controlling for the difference in equity between firms. We also control for tangible assets over total assets, as a proxy for collateral which may influence firms' credit status (Almeida and Campello, 2007). Furthermore, we control for differences in firm size, measured as the log of tangible fixed assets plus one, because

[15]For the subsample of firms where we have additional survey data from the IAB/ZEW Start-up Panel, we also measure y_{it} as a dummy variable equal to 1 if a firm received a loan from a bank in year t, 0 otherwise, and alternatively by the percentage of investments financed by externed financing. Results are presented in Table 12.

smaller firms are more likely to be financially constrained and might have different growth opportunities (Hadlock and Pierce, 2010). We include firms depreciated patent stock to account for its inventive activity and demand for external funds (Hottenrott et al., 2016). We also control for differences in firm' age due to the dynamic nature of the demand for financing over a firm's lifecycle. Lastly, we include in all analyses δ_t, which is a time fixed effect capturing macro-economic changes. η_s are industry fixed effects capturing time-invariant differences across industries.

For the subsample of firms that are available in the IAB/ZEW Start-up dataset, we can control for a variety of additional firm-level and founder characteristics. Specifically, we control for (1) the log of total investments, (2) the log of R&D expenses, (3) the log of total earnings from export, (4) the number of employees at start-up, (5) the number of founders, (6) the number of family members in the founding team, (7) an indicator variable if one of the founders is female, (8) an indicator variable if one of the founders has set up a company prior to this business, (9) the number of years that the founder has experience in the sector, (10) a set of dummy variables indicating the main reasons to setup the new business (e.g., better earnings opportunity, new business idea, otherwise unemployed, among others), (11) a set of indicator variables indicating the prior employment of the founders (self-employed, employed in public or private sector, unemployed, inactive), and lastly, (12) a set of indicator variables indicating the highest education degree of the founders (university, bachelor, high school, no degree). Hence, it allows us to better control for differences that might exist between firms that opted for either a low- or high-capital LLC. Table 1 presents a detailed description of all variables included in our models.

6 Results

6.1 Pooled OLS

Table 7 shows the results for the OLS analysis of the relation between legal form and debt using the full sample. Column 1 shows that low-capital LLCs have less total debt. Including financial control variables into the regression (Column 2) reduces the size of the coefficient, but it remains statistically and economically significant: low-capital LLCs have on average 52 percent[16] less debt compared to high-capital LLCs. Looking at long-term and short-term debt, there seems to be only an economically significant difference on the intensive margin: low-capital LLCs are on average 2 percent less likely to obtain long-term debt (Column 4), but have 55 percent less debt, conditional on obtaining long-term debt. This suggests that low-capital LLCs are as likely to have access to long-term debt as high-capital LLCs, but receive smaller amounts. We observe a similar picture for short-term debt (Columns 7-10).

As pointed out earlier, these findings might reflect differences in the demand for debt rather than differences in access to debt. To disentangle the demand and supply of credit, we make use of the survey sample where we have more detailed data about firms' financing constraints. In addition, it allows us to adjust for a wide variety of additional potentially confounding variables.

First, we verify the representativeness of the survey sample by using the same outcome variables as used in Table 7. We find very similar results compared to when we use the full sample (Table 8). In a next step, we add the additional firm and founder control variables. Results are presented in Table 9.[17] We find that the coefficient on our variable of interest, Low-Capital LLC, only reduces slightly from -0.743 to -0.664 (i.e., a 45 percent difference in debt instead of 52 percent). The inclusion of these additional controls further strengthens our belief that the findings are not driven by differences between low- and

[16] $100 \times \left(e^{-0.743} - 1\right)$

[17] Tables 10 and 11 present results that include the coefficients and standard errors for the additional control variables.

high-capital LLCs apart from their legal form. We further validate our results in Table 9 by using alternative proxies for (access to) debt that are available in the survey data. Results in Table 12 confirm that low-capital LLCs have 8 percent lower likelihood to have bank loans, and use 9 percent less external funds to finance their investments.

Turning to the question whether our findings can be explained by low-capital LLCs demanding less debt, the results in Column 6 in Table 9 reveal that low-capital LLCs are more likely to indicate that they are financially constrained. Similarly, we find that low-capital LLCs are more likely to report that they face difficulties obtaining financing from banks (Column 7). Moreover, we do not find that there is a significant difference in firms' need for external financing. If anything, the negative coefficient in Column 8 indicates that low-capital LLCs are less likely to report that they are not financially constrained because they are not in need of external financing. Taken together, we do not find any evidence of lower demand for debt among low-capital LLCs. On the contrary, they are more likely than their high-capital counterparts to indicate that they are financially constrained.

6.2 Heterogeneity analysis

Having found that low-capital LLCs obtain less debt, we next investigate if certain types of credit providers are more likely to use a firm's legal form as a signal of its default risk. In particular, we expect large credit providers to rely less on a firm's legal form as a signal of default risk (cf., Section 2).

To test this prediction, we estimate the same OLS regression as in equation 1, but add the interaction term $Low - Capital\,LLC_i \times Share\,Relationship\,Banks_r$.

$Share\,Relationship\,Banks_r$ is a dummy variable equal to 1 if the weighted share of small relationship banks for a NUTS-2 region r is higher than or equal to 75 percent (i.e. when relationship banks dominate a specific region).[18] Since most firms' main bank is

[18]We obtained information on all banks in Germany from Orbis for the sample period. The information covers NUTS-2 regions for all branches and average amount of total assets within the sample period. We classify "Savings bank" ("Sparekasse") as relationship banks and calculate the weighted share of relationship banks for each NUTS-2 region. The share of relationship banks is weighted by the average amount of total assets. In our analyses we also control for $Share\,Relationship\,Banks_r$ by including NUTS-2 region fixed effects.

located close to their headquarters, our measure should be highly correlated with the likelihood that firms are contracting with small relationship lenders. Hence, we expect the interaction term to be negative indicating that low-capital LLCs obtain less debt in NUTS-2 regions where firms are more likely to have a contract with a relationship bank.

Results are shown in Table 13. Given our prior findings, we focus on the intensive margin. As hypothesized, the results in Columns 1 - 3 Panel A show that low-capital LLCs in regions with a high share of small relationship banks receive less debt than their counterparts in areas with fewer relationship banks. The effect is most pronounced for long-term debt, which is in line with the notion that short-term debt mainly covers trade credit in our dataset, while long-term debt mainly captures debt from banks. Columns 2 and 3 in Panel B present the results for financing constraints. Low-capital LLCs in NUTS-2 regions with a high share of relationship banks are more likely to be financially constrained. In addition, we find that they are less likely to state that they are not in need of external funds (Column 4 in Panel B). Overall, our results are in line with our hypothesis that relationship lenders are more likely to use the choice of legal form as a signal in their credit decision.

As an alternative test, we investigate whether the effects are more pronounced for firms that depend on trade credit. Similar to relationship banks, trade credit providers are arguably more likely to rely on soft signals, and typically do not have the time and resources to perform an extensive check of firms' financial statements and business plans (Berger and Udell, 2006). Indeed, the results shown in Table 14 document that low-capital LLCs especially have less debt, and especially short-term debt, when they operate in an industry that more heavily depends on trade credit.

7 Robustness Tests

The approach outlined above will measure the average relationship between legal form and debt financing after partialling out the influence of a number of observable covariates. Because a founder's choice of legal form is not a random decision, a concern might be that there are still unobserved factors affecting both the choice of legal form and firms' level of debt. To mitigate such concerns, we provide a battery of robustness tests, including an instrumental variable estimation, regression discontinuity design and a difference-in-differences analysis.

7.1 Instrumental variable regression

To further minimize concerns of endogeneity, as a first step we instrument firms' legal form choice by the nationality of the founder which is known for the firms in the IAB/ZEW Start-up Panel.

We believe that this is a valid instrument because Becht et al. (2008) show that reducing minimum capital requirements to set up a business attracts foreign entrepreneurs from countries where minimum capital requirements are higher. During our sample time period, capital requirements for LLCs in many neighboring countries (e.g. in the Netherlands, Switzerland and Austria) are higher than the minimum capital requirements for German low-capital LLCs. It is also in line with what we observe in the data available in our sample. We observe that over 10 percent of all low-capital LLCs are founded by foreigners, while foreigners represent only 4 percent of the share of high-capital LLCs. In addition, a large proportion of foreigners that started a LLC in Germany are from neighboring countries.[19] Furthermore, we also find that foreign LLCs attract a similar amount of total debt compared to non-foreign LLCs, which provides us with some empirical support for the exclusion restriction assumption (Table 15).

In our IV estimation, we first predict the choice of a Low-Capital LLC by a dummy set to one if the founder has a foreign nationality:

[19] We observe that the founders of foreign LLCs are mainly Austrian (8.38%), British (4.67%), Dutch (8.38%), Italian (7.66%), Polish (6.71%), Swiss (4.91%), and Turkish (12.34%) citizens.

$$Low - Capital\,LLC_i = \beta_1 foreign\,ownsership_i + \beta_2 X_{it} + \delta_t + \eta_s + \varepsilon_{it} \quad (2)$$

The second stage is identical to equation (1) but $Low - Capital\,LLC_i$ will be the predicted $Low - \widehat{Capital}\,LLC_i$ from the first-stage regression.

Table 16 presents the results. Columns 1 and 3 show the first stage results without and with controls. In line with our assumption, foreign ownership is highly significant and predicts the choice of low-capital LLCs. Column 2 and 4 show the second stage results for the impact of predicted low-capital LLCs on the amount of debt, again without and with additional controls. In both cases, we find that there is a negative relation between being a low-capital LLC and the amount of debt received, although the coefficient is not significant when we include the additional control variables. Columns 5 to 7 present second stage results for our measures of financing constraints. Again, the findings show that low-capital LLCs are more financially constrained than their high-capital counterparts and they are less likely to state they are not in need of external financing. Consequently, instrumenting the choice of legal form with foreign ownership leads to estimates similar to the ones we obtained from the OLS regressions.

7.2 Regression Discontinuity

Second, we make use of a Regression Discontinuity Design (RDD). In this setting, we estimate a local average treatment effect around the equity threshold of 25,000 euro that defines low-capital LLCs and high-capital LLCs. Specifically, we compare a subgroup of low-capital LLCs that have accumulated equity close to the 25,000 euro threshold with high-capital LLCs that have equity just above this threshold. The idea is that firms around this threshold are very similar in observed and unobserved characteristics. Because of this, any remaining difference in debt between firms on different sides of the cutoff value can be attributed to their legal form. We estimate the following model:

$$y_{it} = \beta_0 + \beta_1 I[capital > 25,000] + \beta_2 X_{it} + \varepsilon_{it} \quad (3)$$

Where y_{it} is similar to before. $I[capital > 25,000]$ is an identity function that takes value one if a firm has more capital than the corresponding threshold in a given year. To increase accuracy, we also control for the same vector X_{it} as in Equation 1. Importantly, we estimate Equation 3 using a local linear estimation within various bandwidths to assess its robustness.

Before we run our analyses, we plot the relationship between debt and equity to visually examine if a discontinuity is observable around the capital threshold that defines low- and high-capital LLCs.[20] Indeed, Figure 2 displays a clear discontinuity in the relation between capital and total debt once firms have accumulated more than 25,000 euro in paid-in capital, something we would not expect to observe if there were no influence of firms' legal form. For other values of capital, we see a clear positive relationship between capital and debt. The "jump" in debt is difficult to align with the interpretation that continuous growth of firms is associated with a continuous increase in need for/use of debt. If this were the case, we would expect to see a linear relationship across the whole distribution. The results of the RDD analysis with total debt as the outcome variable shown in Panels A (full sample) and B (survey sample) of Table 17 confirm this observation: regardless of the range of the bandwidth, we consistently find that high-capital LLCs have more debt than similar low-capital LLCs. A similar picture emerges when we replace total debt with our measures of demand for financing: high-capital LLCs report to be less financially constrained and are less likely in need of funding.

7.3 Difference-in-Differences

As a third method to mitigate concerns about unobservable factors being correlated with both the choice of legal form and firms' level of debt, we exploit changes in firms' legal form. As explained in detail in Section 3, low-capital LLCs (automatically) change their legal form into a high-capital LLC once they reach the 25,000 euro minimum capital requirement. In the full sample, we observe that 1,890 low-capital LLCs change into

[20]Specifically, we create 40 equal bins in terms of equity. The first bin represents all firms with 1 to 1250 equity, the second bin represents firms with 1251 to 2500 equity, and so forth. For each group we then display the average amount of total debt that is present.

high-capital LLCs during the sample period. We label this group as $switching\,low-capital\,LLCs$. The remaining 31,954 low-capital LLCs do not change their legal form, and are removed from the sample. The group of firms that incorporated as a high-capital LLC at startup by definition stay high-capital LLCs over the entire period. We label these as $permanent\,high-capital\,LLCs$. Descriptive statistics for the different groups are presented in Table 6. Panel B of Table 6 already reveals that low-capital LLCs that switch legal form indeed increase their likelihood to obtain long-term debt, and also their total level of debt.

Next, we empirically estimate the impact of the legal form on access to finance by comparing the switching low-capital LLCs with the permanent high-capital LLCs. In particular, we test the following model:

$$y_{it} = \beta_1 Post\,Switch_t \times Low-Capital\,LLC_i + \beta_2 X_{it} + d_t + \alpha_i + \varepsilon_{it} \tag{4}$$

The indicator $Post\,Switch_t \times Low-Capital\,LLC_i$ is equal to one if a low-capital LLC has turned into a high-capital LLC in year t or any year following the change. d_t is a time fixed effect capturing macro-economic changes, and α_i are firm fixed effects capturing time-invariant differences across firms. The intuition behind this analysis is that if low-capital LLCs indeed face frictions in obtaining debt financing, changing to a high-capital LLC will relax these constraints by eliminating the negative signal attached to the low-capital legal form. This setup allows us to isolate the impact of changing legal form net of changes in access to finance that would have occurred otherwise and (unobserved) time-invariant firm characteristics such as the founding team and management quality or ownership structure that might play a role. The results shown in Table 18 indicate that, on average, the total debt of switching low-capital LLCs goes up by 15 percent after the change of legal form. Again, the results are most pronounced for long-term debt (increase of almost 26 percent), which is most likely to be bank debt.

The difference-in-differences estimator hinges on the assumption that in the absence of a change of legal form, the trends in debt financing between switching LLCs and their non-switching counterparts would have remained stable. To provide some support for this assumption, we also estimate a dynamic version of Equation 4 where we include indicators for the years before and after the change to a high-capital LLC.[21]

The results are shown in Figure 3. We find that long- and short-term debt start increasing significantly one year after low-capital LLCs have turned into high-capital LLCs. Importantly, we do not observe any significantly diverging pre-trends between the two groups. This bolsters our belief that the permanent high-capital LLCs serve as a valid counterfactual.

7.4 Changes in paid-in capital vs. legal form

As a final robustness test, we want to verify that our findings are indeed driven by the change in legal form and not driven by (an increase in) the amount of paid-in capital. To do so, we exploit an alternative setting: the reduction of paid-in capital requirements in Austria in 2014. In contrast to Germany, the reform in Austria did not introduce a new legal form. Instead, Austria lowered the paid-in capital requirements for newly created LLCs from 17,500 euro in cash to 5,000 euro.[22] This means there is no clear observable signal in the company name for Austrian LLCs. Hence, if our results would be driven by the actual amount of paid-in capital of a firm rather than the signal related to a firm's legal form, we would observe similar effects as presented above. The descriptive statistics for the Austrian sample are described in Table 19.

[21] The estimating equation is: $y_{it} = \sum_{\tau=-4,\tau\neq-1}^{+3} \gamma_\tau D_{i\tau} + \beta_2 X_{it} + d_t + \alpha_i + \varepsilon_{it}$. $D_{i\tau}$ is an indicator equal to one if a low-capital LLC switches to a high-capital LLC firm τ years earlier or $-\tau$ later if τ is negative, and zero otherwise. We include indicators for τ = "-4 or more years" before the change to a high-capital LLC to "3 or more years" after switching. In the regression analyses, we omit the indicator of the year before low-capital LLCs have been transformed into high-capital LLCs (τ = -1), so the estimated coefficients should be interpreted as the change relative to the year before the change in legal form.

[22] After 10 years the former capital requirements of 17,500 euro must be reached to prevent the dissolution of the firm.

As a first test, Figure 4 displays a plot of total debt against paid-in capital. Unlike before (cf., Figure 3) we do not observe a discontinuity in total debt around the threshold level of 17,500 euro. Total debt appears to linearly increase with paid-in capital. In line with this observation, the results from a RDD analysis shown in Table 20 indicate no significant difference between firms close to the threshold value. Similarly, results of a difference-in-differences analysis where we compare firms that at a certain point cross the capital threshold with firms that permanently have paid-in capital higher than 17,500 euro show no significant changes in debt once firms cross the capital threshold (cf., Table 21).

8 Conclusion

In this paper, we examine for a sample of German firms how the choice of a legal form with a low or high paid-in minimum capital requirement affects their access to and their level of debt. We find that entrepreneurs choosing for a legal form with low paid-in capital have roughly equal access to debt compared to their high-capital counterparts, but, conditional on obtaining debt, acquire substantially lower levels of debt. We provide indirect, but compelling evidence that this difference can be explained by the notion that outside investors rely on a firm's legal form as a signal of default risk. Several other plausible explanations for this difference are not supported by the evidence. First, we do not find that low-capital firms have lower demand for debt. Second, concerns of omitted variable bias – including the influence of potentially correlated signals – do not appear to undermine our main findings. Finally, we find that investors do rely on firms' legal form and not purely on the underlying level of paid-in capital.

Our findings are also important beyond the context of the reduction in limited liability requirements. Next to differences in capital requirements in LLC, most countries also have different legal forms for private and public firms. One of the main differences between these is that public firms are required to have more paid-in capital at startup. Similar as in our setting, public companies may thus be perceived to be of higher quality by lenders. Further research, could verify if the finding in our setting can be extrapolated to this context.

From a theoretical perspective, this study makes several contributions. First, we add to the literature on the use of signals in new venture financing, and, in particular debt financing (e.g., Chua et al. (2011); Eddleston et al. (2016); Han et al. (2009)). While prior work has mostly focused on the role of founders' human and social capital, intellectual property, or third party affiliations, we highlight the role of new ventures' legal structure. Our findings also indicate that "hard" information (Liberti and Petersen, 2019) like legal form can complement the "soft" information typically gathered by small relationship banks, whereas it appears to be of less value to large transactional banks. This confirms the findings of prior studies that the effectiveness of a signal is partly determined by the characteristics of the receiver (cf., Connelly et al. (2011)).

Furthermore, our findings contribute to the ongoing debate on firm entry regulations. While most research shows positive effects of deregulation on firm entry (Klapper et al., 2006; Branstetter et al., 2014; Becht et al., 2008), we provide evidence that reduced minimum capital requirements to promote firm entry can negatively affect the access to external finance even for firms that might have obtained debt prior to the reform. In our setting, entrepreneurs with profitable business ideas but which opted for a low-capital LLC, will suffer from a negative signaling effect. Thus, a reduction in firm entry regulation might not only promote the creation of businesses by individuals that might otherwise not have opted for an entrepreneurial career, it will also have negative performance effects for high-quality startups who want to benefit from the lower capital requirements because of reasons unrelated to their creditworthiness. With our paper we hope to better inform these entrepreneurs about the full consequences of the legal form choice.

To conclude, we point to some limitations of our study. These can serve as stepping stones for future research. While we employ a variety of estimation techniques to isolate the effect of legal form, future work could look for quasi-natural variation to more narrowly identify the causal pathways between legal form and debt financing. We look at the impact of legal form on the level of financing. Future work could examine whether loan providers also respond by altering the cost of financing. Recent advances have shown that certain characteristics and actions can "unlock" the signaling value of other firm and market characteristics in the context of new venture financing (Bapna, 2019; Plummer et al., 2016). It would be interesting to examine whether legal form acts as a complement or substitute to other signals identified by prior work. Furthermore, future studies should investigate the signaling value of legal form in the context of equity financing. While debt providers tend to focus on a startup's stability and ability to repay a loan, equity investors concentrate on a venture's growth potential (Bruns et al., 2008). Therefore, different signals may be desired by debt versus equity providers. Ultimately, while we focus on the financing of startups, more work is needed to uncover the relation between legal firm and firm survival and growth.

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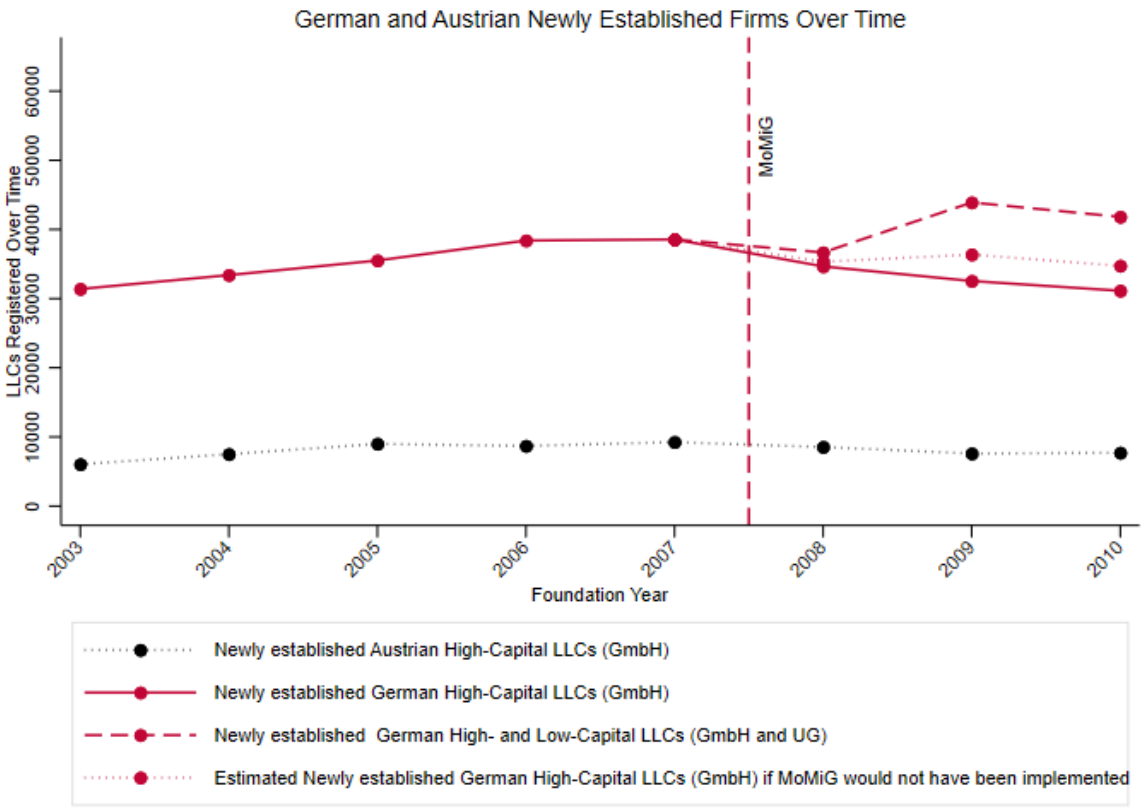
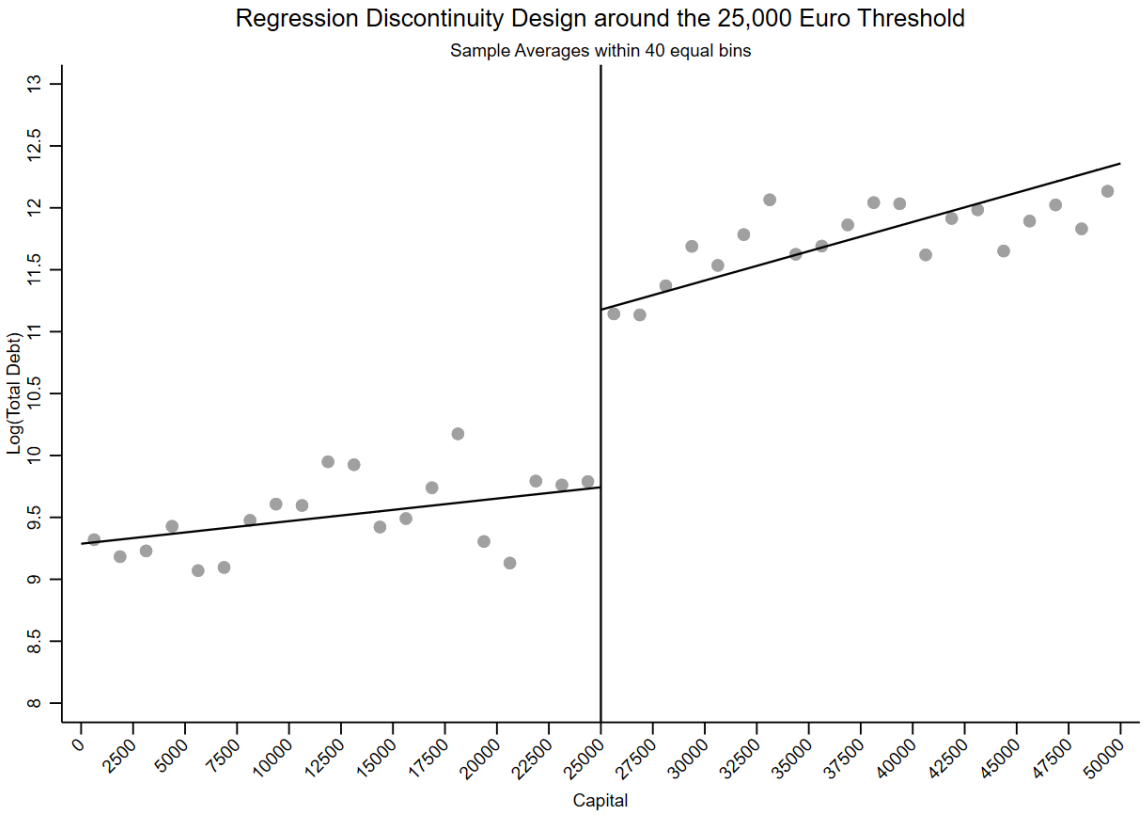
9 Tables and Figures

Figure 1



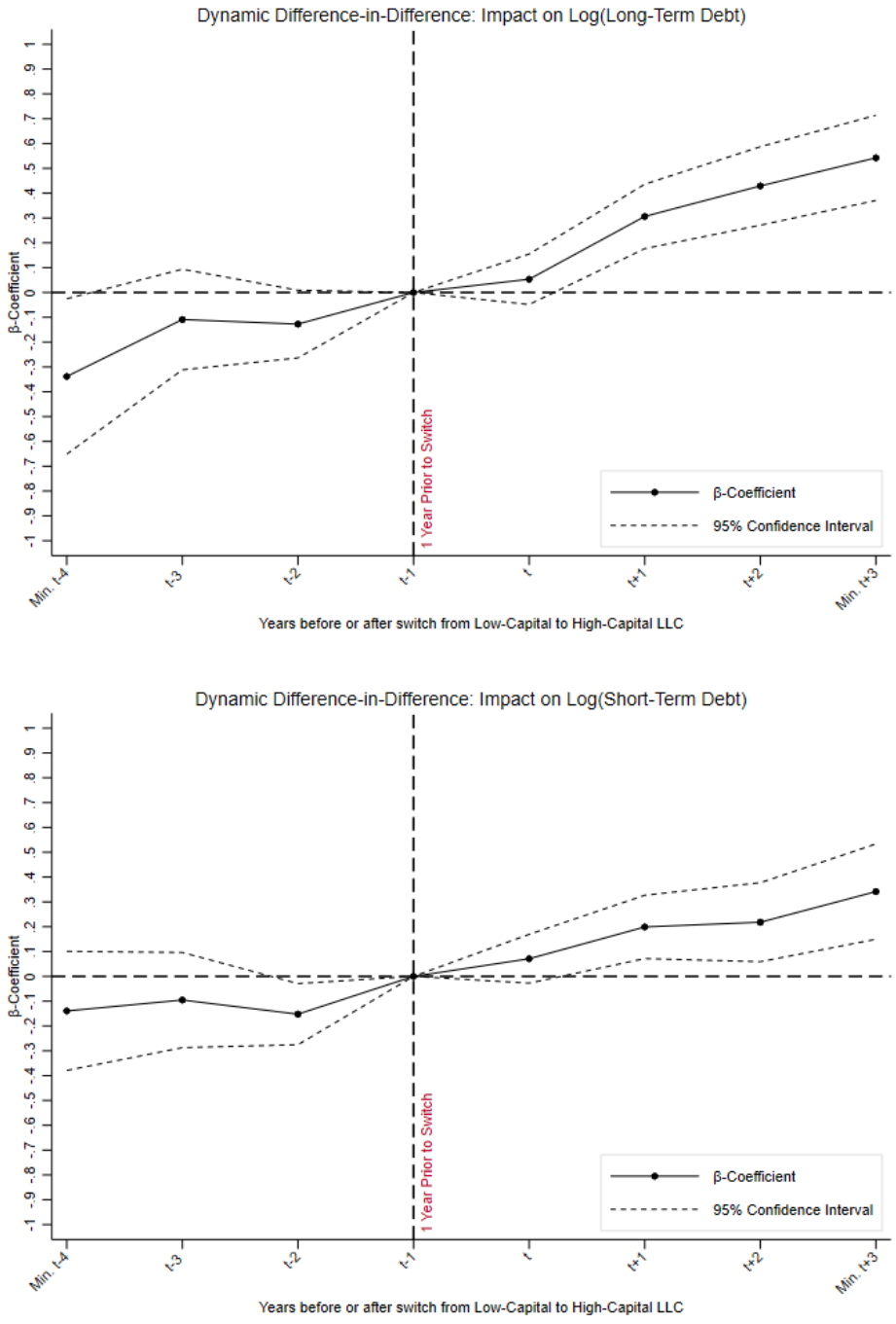
This graph shows the number of newly established LLCs for Germany and Austria. The dotted black line shows the annual number of Austrian LLCs. The solid red line shows the annual number of German high-capital LLCs. The dashed red line shows the annual number of German high- and low-capital LLCs. The dotted red line shows the estimated annual number of German LLCs if MoMiG (low-capital LLCs) would not have been implemented.

Figure 2



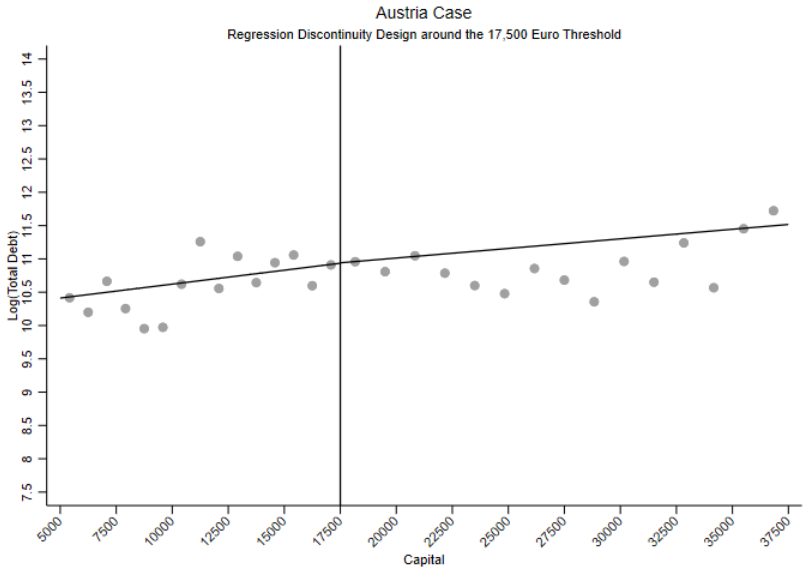
This figure plots the relationship between log of total debt and capital. We used a bandwidth of 25,000 (i.e. capital between 0 and 50,000 euro). The solid line are the fitted values from the local linear regressions. The vertical line is the cut-off point (i.e. 25,000 euro in paid-in capital) that defines the treatment (i.e. low- and high-capital LLCs). The dots represent the average log of total debt in 40 bins.

Figure 3



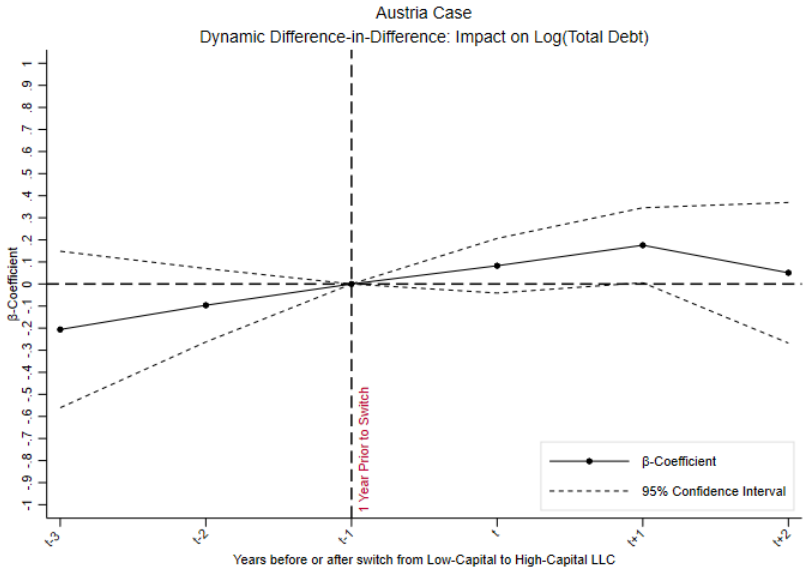
This figure presents the results of the dynamic difference-in-differences regression of long-term- (graph on the top) and short-term-debt (graph on the bottom) over time since change of legal form. The control group are high-capital LLCs. Dotted lines represent 95% confidence intervals.

Figure 4



This figure plots the relationship between log of total debt and capital for Austrian firms. We used data from firms with capital between 5,000 and 37,500 euro. The solid line are the fitted values from the local linear regressions. The vertical line is the cut-off point (i.e. 17,500 euro in paid-in capital) that defines the placebo (i.e. Austrian low- and high-capital LLCs). The dots represent the average log of total debt in 30 bins.

Figure 5



This figure presents the results of the dynamic difference-in-differences regression of total debt over time since increase in minimum capital of Austrian low-capital LLCs. The control group are Austrian LLCs that have permanently higher capital. Dotted lines represent 95% confidence intervals.

Table 1: Variable Description

Variable	Descritpion	Datasource
Low-Capital LLC	Dummy set to one if firm operates under the legal form with low capital requirements (i.e. UG in Germany or Low Capital GmbH in Austria)	Orbis
Total Debt	Non-Current Liabilities + Current Liabilities	Orbis
Log(Total Debt)	Log of Total Debt	Orbis
Access to Long-Term Debt	Dummy set to one if long term debt > 0	Orbis
Long-Term Debt	Long term debt in euro, conditional of having debt	Orbis
Log(Long-Term Debt)	Log of Long-Term Debt	Orbis
Access to Short-Term Debt	Dummy set to one if Current Liabilities > 0	Orbis
Short-Term Debt	Total of Current Liabilities in euro, conditional of having debt	Orbis
Log(Short-Term Debt)	Log of Long-Term Debt	Orbis
Access to Bank Loans (survey)	Dummy set to one if investments have been financed by bank loans	IAB/ZEW Startup Panel
% Inv. Financed by Ext. Funds	Percentage of investments that are financed by external funding	IAB/ZEW Startup Panel
Financing Constraints	Financing difficulties due to (any) external investors	IAB/ZEW Startup Panel
Bank Financing Constraints	Financing difficulties due to banks	IAB/ZEW Startup Panel
No Funds Needed	Dummy set to one if firm does not need external finance	IAB/ZEW Startup Panel
Share Relationship Banks	Dummy set to 1 if the weighted share of small relationship banks for a NUTS-2 region is higher than or equal to 75 percent	Orbis
Trade Credit	Firm's value of inventory divided by total assets	Orbis
Foreign Owner (IV)	Dummy set to one if founder has foreign nationality	IAB/ZEW Startup Panel
Post Switch	Dummy set to one if a low-capital LLC has turned into a high-capital LLC	Orbis
Capital	Issued Share capital (Authorized capital)	Orbis
Accumulated Profit/Loss	All Shareholders funds not linked with the Issued capital such as Reserve capital, Undistributed profit	Orbis
Size	Natural log of Tangible fixed assets + 1	Orbis
Age	Years since founding date	Orbis
Tangible Assets	Tangible fixed assets / total assets	Orbis
Patent Stock	Depreciated (annual rate of 15 percent) stock of patents	Orbis IP
Investments	Investment volume in euro	IAB/ZEW Startup Panel
R&D Expenses	R&D expenditures in euro	IAB/ZEW Startup Panel
Export	Turnover due to export in euro	IAB/ZEW Startup Panel
Employees at Start-Up	Enterprise's employees at founding date	IAB/ZEW Startup Panel
Founders	Number of founders	IAB/ZEW Startup Panel
Family Members	Number of family members working in the enterprise at founding date	IAB/ZEW Startup Panel
Gender	Dummy set to one if female is part of the founding team	IAB/ZEW Startup Panel
Previous Enterprise	Dummy set to on if (one of the) founder(s) has founded an enterprise before	IAB/ZEW Startup Panel
Prior Experience	Industry experience in years (for teams: founder with the longest experience)	IAB/ZEW Startup Panel
Motive: Self-Employment	Dummy set to one if founding motive = self-determined working	IAB/ZEW Startup Panel
Motive: Business Idea	Dummy set to one if founding motive = realisation of certain business idea	IAB/ZEW Startup Panel
Motive: No Emp. Opp.	Dummy set to one if founding motive = improper employment opportunities	IAB/ZEW Startup Panel
Motive: Unemployment	Dummy set to one if founding motive = Escape from unemployment	IAB/ZEW Startup Panel
Motive: Better Earnings	Dummy set to one if founding motive = Encouragement by former employer	IAB/ZEW Startup Panel
Prior: Self-Employed	Dummy set to one if employment situation immediately before founding = Self-employed	IAB/ZEW Startup Panel
Prior: Employed (Private)	Dummy set to one if employment situation immediately before founding = private employed	IAB/ZEW Startup Panel
Prior: Employed (Public)	Dummy set to one if employment situation immediately before founding = public employed	IAB/ZEW Startup Panel
Prior: Unemployed	Dummy set to one if employment situation immediately before founding = unemployed	IAB/ZEW Startup Panel
Prior: Inactive	Dummy set to one if employment situation immediately before founding = inactive	IAB/ZEW Startup Panel
Edu: No Degree / High School	Dummy set to one if highest qualification of the founders = No Degree / Technical High School	IAB/ZEW Startup Panel
Edu: Bachelor	Dummy set to one if highest qualification of the founders = Professional bachelor / Official training	IAB/ZEW Startup Panel
Edu: University	Dummy set to one if highest qualification of the founders = University degree	IAB/ZEW Startup Panel

This table shows all variables and respective data sources used for the empirical analysis.

Table 2: Newly established firms in Germany and Austria over time

	Germany		Austria
Foundation Year	# Newly registered High-Capital LLCs (GmbH)	# Newly registered High- and Low-Capital LLCs (GmbH and UG)	# High-Capital LLCs (GmbH)
2003	31,394	31,394	6,047
2004	33,400	33,400	7,504
2005	35.509	35.509	8,994
2006	38,398	38,398	8,699
2007	38,563	38,563	9,249
2008	34,653	36,672	8,542
2009	32,547	43,901	7,598
2010	31,139	41,820	7,710
Yearly average # Newly Registered Firms during Pre-MoMiG period (03-07):	35,453	35,453	8,099
Yearly average # Newly Registered Firms during Post-MoMiG year (08-10):	32,780	40,798	7,950
Average % change Pre vs. Post:	-7.54%	15,08%	-1.84%

This table presents the number of newly established LLCs within Germany and Austria over time. Data comes from historical records of the Orbis Database. High-capital LLCs are companies with the legal form GmbH. Low-capital LLCs are companies with the legal form UG.

Table 3: Data Cleaning - German Sample

Cleaning Steps	Number firms	Number observations
Raw Data	204,312	702,246
Remove financial companies		-52,500
Clean Capital variable		-15,253
Drop large firms		-34,833
Drop missing and implausible observations		-40,071
Final sample	170,480	559,588

This table describes the cleaning procedure. The raw data includes all unconsolidated balance sheet data for all German low- and high-capital LLCs (i.e. UGs and GmbHs) that were incorporated between 2008 and 2017, which are included in the Historical Orbis Database (Database version February 2019). We cleaned the data by removing financial firms. We also cleaned the capital data by removing high-capital LLCs that had values below the required minimum capital. We only included small companies in the data as defined by the German Accounting Implication Act (BilRUG). As a final cleaning step, we removed firms with missing data on Capital, a small number of doubles in the data, and firms that reported a zero or negative number on total assets.

Table 4: Descriptive Statistics: Full Sample

	High-Capital LLC		Low-Capital LLC	
	N: 478,167		N: 81,421	
	Mean	Std. Dev.	Mean	Std. Dev.
$Low-Capital\,LLC$	0	0	1	0
$Total\,Debt_{(\times 1000)}$	281.310	443.038	46.342	125.899
$Log(Total\,Debt)$	10.990	2.350	9.313	1.931
$Access\,to\,Long-Term\,Debt$	0.627	0.484	0.584	0.493
$Long-Term\,Debt_{(\times 1000)}$	244.444	394.605	43.296	123.584
$Log(Long-Term\,Debt)$	10.872	2.358	9.027	2.124
$Access\,to\,Short-Term\,Debt$	0.542	0.498	0.523	0.499
$Short-Term\,Debt_{(\times 1000)}$	100.866	241.136	17.530	67.807
$Log(Short-Term\,Debt)$	10.552	2.373	8.827	2.056
$Capital_{(\times 1000)}$	28.759	24.114	1.436	2.239
$Accumulated\,Profit/Loss_{(\times 1000)}$	58.057	194.042	7.091	53.785
$Total\,Assets_{(\times 1000)}$	395.406	486.754	61.070	170.564
$Size$	8.805	3.717	7.228	3.225
Age	2.449	1.842	1.796	1.404
$Tangible\,Assets$	0.176	0.219	0.210	0.236
$Patent\,tock$	0.030	0.492	0.007	0.163

This table presents descriptive statistics for the full sample of low- and high-capital LLCs, which is retrieved from the Orbis Historical Database. Corresponding variable definitions can be found in Table 1. All monetary values are in euro.

Table 5: Descriptive Statistics: Survey Sample

	High-Capital LLC		Low-Capital LLC	
	N: 8,510		N: 896	
	Mean	Std. Dev.	Mean	Std. Dev.
$Low-Capital\,LLC$	0	0	1	0
$Total\,Debt_{(\times 1000)}$	394.590	653.246	43.061	71.399
$Log(Total\,Debt)$	11.941	1.582	9.675	1.717
$Access\,to\,Long-Term\,Debt$	0.745	0.436	0.614	0.487
$Long-Term\,Debt_{(\times 1000)}$	286.718	555.439	30.362	55.815
$Log(Long-Term\,Debt)$	11.429	1.778	9.021	2.096
$Access\,to\,Short-Term\,Debt$	0.607	0.488	0.555	0.497
$Short-Term\,Debt_{(\times 1000)}$	136.565	359.703	18.144	47.542
$Log(Short-Term\,Debt)$	11.108	1.831	9.242	1.859
$Access\,to\,Bank\,Loans$	0.316	0.465	0.116	0.322
$\%Inv.\,Financed\,by\,Ext.\,Funds$	0.348	0.421	0.283	0.395
$Financing\,Constraints$	0.184	0.388	0.230	0.421
$Bank\,Financing\,Constraints$	0.151	0.358	0.181	0.386
$No\,Funds\,Needed$	0.488	0.500	0.428	0.495
$Capital_{(\times 1000)}$	36.324	72.476	1.818	2.725
$Accumulated\,Profit/Loss_{(\times 1000)}$	77.364	400.502	7.674	38.477
$Total\,Assets_{(\times 1000)}$	508.206	688.939	52.485	87.324
$Size$	9.864	2.514	7.811	2.492
Age	2.613	1.937	1.767	1.375
$Tangible\,Assets$	0.195	0.211	0.197	0.222
$Patent\,Stock$	0.152	0.883	0.017	0.205
$Investments_{(\times 1000)}$	64.035	190.718	15.654	89.976
$R\&DExpenses_{(\times 1000)}$	46.634	153.452	9.513	51.429
$Export_{(\times 1000)}$	140.011	459.603	6.253	35.982
$Employees\,at\,Start-Up$	0.502	0.500	0.338	0.474
$Founders$	1.816	0.966	1.423	0.728
$Family\,Members$	0.081	0.360	0.050	0.253
$Gender$	0.165	0.371	0.179	0.384
$Previous\,Enterprise$	0.516	0.500	0.546	0.498
$Prior\,Experience$	17.523	9.914	14.335	10.915
$Motive:\,Self-Employment$	0.393	0.488	0.311	0.463
$Motive:\,Business\,Idea$	0.465	0.499	0.482	0.500
$Motive:\,No\,Emp.\,Opp.$	0.083	0.276	0.082	0.275
$Motive:\,Unemployment$	0.028	0.166	0.051	0.221
$Motive:\,Better\,Earnings$	0.031	0.172	0.074	0.261
$Prior:\,Self-Employed$	0.421	0.494	0.431	0.496
$Prior:\,Employed\,(Private)$	0.583	0.493	0.404	0.491
$Prior:\,Employed\,(Public)$	0.056	0.231	0.084	0.277
$Prior:\,Unemployed$	0.063	0.242	0.082	0.275
$Prior:\,Inactive$	0.052	0.221	0.124	0.330
$Edu:\,No\,Degree/HighSchool$	0.453	0.498	0.473	0.500
$Edu:\,Bachelor$	0.205	0.404	0.239	0.427
$Edu:\,University$	0.342	0.475	0.287	0.453

This table presents descriptive statistics for the survey sample of low- and high-capital LLCs, which is retrieved from the IAB/ZEW Start-up Panel. Corresponding variable definitions can be found in Table 1. All monetary values are in euro.

Table 6: Descriptive Statistics: DiD

Panel A: Treated and control observations

	Permanent High-Capital LLC		Firms that switch from Low- to High-Capital LLC	
	N: 473,523		N: 8,525	
	Mean	Std. Dev.	Mean	Std. Dev.
$Low-Capital\ LLC$	0.000	0.000	0.455	0.498
$Total\ Debt_{(\times 1000)}$	281.521	443.842	189.173	298.538
$Log(Total\ Debt)$	10.984	2.356	11.027	1.870
$Access\ to\ Long-Term\ Debt$	0.626	0.484	0.650	0.477
$Long-Term\ Debt_{(\times 1000)}$	245.150	395.624	142.181	248.950
$Log(Long-Term\ Debt)$	10.870	2.363	10.624	1.942
$Access\ to\ Short-Term\ Debt$	0.541	0.498	0.586	0.493
$Short-Term\ Debt_{(\times 1000)}$	100.877	241.349	75.618	184.878
$Log(Short-Term\ Debt)$	10.548	2.378	10.441	2.017
$Capital_{(\times 1000)}$	28.795	24.204	14.704	14.277
$Accumulated\ Profit/Loss_{(\times 1000)}$	57.794	194.167	60.884	148.697
$Total\ Assets_{(\times 1000)}$	408.390	607.861	285.157	419.189
$Size$	8.796	3.727	9.028	2.839
Age	2.436	1.839	2.723	1.869
$Tangible\ Assets$	0.176	0.219	0.184	0.206
$Patent\ Stock$	0.030	0.493	0.028	0.334

Panel B: Treated firms before and after switch

	Low-Capital LLC (pre switch)		High-Capital LLC (post switch)	
	N: 3,881		N: 4,644	
	Mean	Std. Dev.	Mean	Std. Dev.
$Low-Capital\ LLC$	1	0	0	0
$Total\ Debt_{(\times 1000)}$	105.123	186.500	260.079	352.132
$Log(Total\ Debt)$	10.377	1.915	11.566	1.647
$Access\ to\ Long-Term\ Debt$	0.568	0.495	0.715	0.451
$Long-Term\ Debt_{(\times 1000)}$	78.024	153.123	183.546	287.170
$Log(Long-Term\ Debt)$	9.983	1.967	11.038	1.809
$Access\ to\ Short-Term\ Debt$	0.597	0.491	0.578	0.494
$Short-Term\ Debt_{(\times 1000)}$	46.873	128.438	99.745	218.525
$Log(Short-Term\ Debt)$	9.886	2.039	10.922	1.869
$Capital_{(\times 1000)}$	2.136	3.308	25.123	11.145
$Accumulated\ Profit/Loss_{(\times 1000)}$	32.812	94.482	84.649	179.008
$Total\ Assets_{(\times 1000)}$	150.107	260.090	395.406	486.754
$Size$	8.279	2.944	9.544	2.644
Age	1.418	1.226	3.814	1.594
$Tangible\ Assets$	0.184	0.210	0.184	0.204
$Patent\ Stock$	0.018	0.275	0.037	0.377

Panel A provides descriptive statistics for permanent high-capital LLCs (i.e. firms that opted for the legal form high-capital LLC (GmbH) at startup), as well as firms that switched legal forms from a low-capital LLC to a high-capital LLC in our sample period. Panel B provides statistics about the observations in either the pre and post switch period. Corresponding variable definitions can be found in Table 1. All monetary values are in euro.

Table 7: OLS: Full Sample

	Log(Total Debt)		Access to Long-Term Debt		Log(Long-Term Debt)		Access to Short-Term Debt		Log(Short-Term Debt)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$Low - Capital\,LLC$	-1.621***	-0.743***	-0.034***	-0.022***	-1.671***	-0.800***	-0.035***	-0.009**	-1.618***	-0.723***
	(0.012)	(0.012)	(0.003)	(0.004)	(0.016)	(0.017)	(0.003)	(0.004)	(0.016)	(0.017)
$Capital$		0.006***		0.000		0.006***		-0.000***		0.005***
		(0.000)		(0.000)		(0.000)		(0.000)		(0.000)
$Accumulated\,Profit/Loss$		0.000***		-0.000***		-0.000		-0.000***		-0.000***
		(0.000)		(0.000)		(0.000)		(0.000)		(0.000)
$Size$		0.336***		0.020***		0.276***		0.017***		0.324***
		(0.002)		(0.000)		(0.003)		(0.000)		(0.003)
Age		0.126***		0.037***		0.043***		-0.013***		0.136***
		(0.008)		(0.002)		(0.011)		(0.003)		(0.012)
$Tangible\,Assets$		-1.865***		0.213***		-0.774***		-0.101***		-2.590***
		(0.020)		(0.006)		(0.027)		(0.006)		(0.028)
$Patent\,Stock$		0.034		0.007***		0.042		0.005		0.017
		(0.023)		(0.002)		(0.031)		(0.003)		(0.015)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	534,355	384,661	530,102	381,936	328,956	257,662	553,561	388,746	298,377	227,375
R-squared	0.320	0.487	0.059	0.086	0.225	0.296	0.030	0.035	0.241	0.342

This table presents estimates from regressions of debt and financing constraint measures on legal form choice for the full sample, which is retrieved from the Orbis Historical Database. Variable definitions are presented in Table 1. Standard errors are reported in parentheses and clustered at the firm level. *, **, and *** represent significance at the 10%, 5%, and 1% level, respectively.

Table 8: OLS: Survey Sample with same outcome variables used for the Full Sample

	Log(Total Debt)		Access to Long-Term Debt		Log(Long-Term Debt)		Access to Short-Term Debt		Log(Short-Term Debt)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$Low-Capital\,LLC$	-2.046***	-0.831***	-0.105***	-0.041	-2.187***	-1.108***	-0.067**	-0.022	-1.717***	-0.685***
	(0.100)	(0.081)	(0.026)	(0.030)	(0.136)	(0.133)	(0.027)	(0.032)	(0.123)	(0.120)
$Capital$		0.001*		0.000		0.001		-0.000		0.002***
		(0.001)		(0.000)		(0.001)		(0.000)		(0.001)
$Accumulated\,Profit/Loss$		-0.000***		-0.000**		-0.000***		-0.000***		-0.000***
		(0.000)		(0.000)		(0.000)		(0.000)		(0.000)
$Size$		0.405***		0.025***		0.366***		0.015***		0.385***
		(0.016)		(0.004)		(0.024)		(0.004)		(0.021)
Age		0.149***		0.024		0.145**		-0.033*		0.026
		(0.046)		(0.015)		(0.066)		(0.018)		(0.074)
$Tangible\,Assets$		-2.176***		0.197***		-0.997***		-0.154***		-2.996***
		(0.128)		(0.034)		(0.173)		(0.046)		(0.180)
$Patent\,Stock$		0.138***		-0.005		0.180***		0.009		0.060*
		(0.023)		(0.008)		(0.034)		(0.007)		(0.031)
Additional Firm Controls	No	No	No	No	No	No	No	No	No	No
Founder Controls	No	No	No	No	No	No	No	No	No	No
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9,368	8,719	9,298	8,669	6,813	6,446	9,403	8,723	5,658	5,328
R-squared	0.291	0.522	0.057	0.094	0.208	0.346	0.032	0.041	0.201	0.347

This table presents estimates from regressions of financing constraint measures on legal form choice. Variable definitions are presented in Table 1. In this setup, we use data from the survey sample, which is retrieved from the IAB/ZEW Start-up Panel. Standard errors are reported in parentheses and clustered at the firm level. *, **, and *** represent significance at the 10%, 5%, and 1% level, respectively.

Table 9: OLS: Survey Sample

	Log(Total Debt)	Access to Long-Term Debt	Log(Long-Term Debt)	Access to Short-Term Debt
	(1)	(2)	(3)	(4)
Low − Capital LLC	-0.664***	-0.022	-0.956***	-0.062
	(0.098)	(0.039)	(0.183)	(0.043)
Capital	0.002***	-0.000	0.001	0.000
	(0.001)	(0.000)	(0.001)	(0.000)
Accumulated Profit/Loss	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Size	0.354***	0.026***	0.324***	0.018***
	(0.025)	(0.005)	(0.038)	(0.006)
Age	0.068	0.028	0.026	-0.045*
	(0.061)	(0.021)	(0.098)	(0.025)
Tangible Assets	-1.799***	0.163***	-0.672***	-0.160***
	(0.169)	(0.047)	(0.248)	(0.062)
Patent Stock	0.117**	0.002	0.213***	-0.000
	(0.046)	(0.011)	(0.075)	(0.013)
Additional Firm Controls	Yes	Yes	Yes	Yes
Founder Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	3,584	3,561	2,672	3,583
R-squared	0.536	0.116	0.347	0.053

	Log(Short-Term Debt)	Financing Constraints	Bank Financing Constraints	No Funds Needed
	(5)	(6)	(7)	(8)
Low − Capital LLC	-0.407***	0.054*	0.058*	-0.041
	(0.143)	(0.032)	(0.030)	(0.029)
Capital	0.002***	0.000	0.000	-0.000
	(0.001)	(0.000)	(0.000)	(0.000)
Accumulated Profit/Loss	-0.000***	-0.000***	-0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Size	0.351***	-0.001	0.003	-0.003
	(0.033)	(0.004)	(0.004)	(0.004)
Age	-0.018	-0.086***	-0.083***	0.081***
	(0.097)	(0.018)	(0.017)	(0.019)
Tangible Assets	-2.773***	0.089*	0.050	-0.126***
	(0.248)	(0.047)	(0.045)	(0.047)
Patent Stock	0.018	0.005	-0.013	-0.034**
	(0.068)	(0.011)	(0.008)	(0.014)
Additional Firm Controls	Yes	Yes	Yes	Yes
Founder Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	2,209	3,575	3,575	3,575
R-squared	0.371	0.094	0.083	0.436

This table presents estimates from regressions of debt and financing constraint measures on legal form choice for the survey sample, which is retrieved from the IAB/ZEW Start-up Panel. Tables 10 and 11 present results that include the coefficients and standard errors for the additional control variables. Variable definitions are presented in Table 1. Standard errors are reported in parentheses and clustered at the firm level. *, **, and *** represent significance at the 10%, 5%, and 1% level, respectively.

Table 10: OLS: Survey Sample with full controls I

	Log(Total Debt)	Access to Long-Term Debt	Log(Long-Term Debt)	Access to Short-Term Debt
	(1)	(2)	(3)	(4)
$Low - Capital\,LLC$	-0.664***	-0.022	-0.956***	-0.062
	(0.098)	(0.039)	(0.183)	(0.043)
$Capital$	0.002***	-0.000	0.001	0.000
	(0.001)	(0.000)	(0.001)	(0.000)
$Accumulated\,Profit/Loss$	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
$Size$	0.354***	0.026***	0.324***	0.018***
	(0.025)	(0.005)	(0.038)	(0.006)
Age	0.068	0.028	0.026	-0.045*
	(0.061)	(0.021)	(0.098)	(0.025)
$Tangible\,Assets$	-1.799***	0.163***	-0.672***	-0.160***
	(0.169)	(0.047)	(0.248)	(0.062)
$Patent\,Stock$	0.117**	0.002	0.213***	-0.000
	(0.046)	(0.011)	(0.075)	(0.013)
Investments	0.008*	0.002	-0.003	-0.001
	(0.004)	(0.002)	(0.007)	(0.002)
R&D Expenses	0.011**	-0.001	0.007	0.000
	(0.005)	(0.002)	(0.009)	(0.002)
Export	0.021***	-0.000	0.014*	-0.002
	(0.005)	(0.002)	(0.008)	(0.002)
Employees at Start-Up	0.215***	0.015	0.189**	0.013
	(0.055)	(0.020)	(0.096)	(0.023)
Founders	0.153***	0.026**	0.140***	0.005
	(0.033)	(0.011)	(0.054)	(0.014)
Family Members	-0.139*	0.002	-0.030	-0.034
	(0.078)	(0.024)	(0.098)	(0.030)
Gender	-0.151**	-0.017	-0.048	0.000
	(0.075)	(0.027)	(0.112)	(0.032)
Previous Enterprise	0.009	0.019	-0.114	0.046*
	(0.065)	(0.024)	(0.098)	(0.027)
Prior Experience	0.001	0.000	0.004	-0.000
	(0.003)	(0.001)	(0.004)	(0.001)
Motive: Business Idea	0.011	-0.017	0.196**	0.014
	(0.060)	(0.022)	(0.096)	(0.024)
Motive: No Emp. Opp.	0.080	-0.041	0.077	0.048
	(0.104)	(0.037)	(0.162)	(0.043)
Motive: Unemployment	-0.187	0.018	-0.283	-0.062
	(0.156)	(0.053)	(0.195)	(0.076)
Motive: Better Earnings	0.349***	-0.099*	0.071	0.003
	(0.118)	(0.055)	(0.263)	(0.058)
Prior: Self-Employed	-0.045	-0.040	0.001	-0.056
	(0.088)	(0.031)	(0.134)	(0.038)
Prior: Employed (Private)	0.064	0.031	0.071	-0.043
	(0.081)	(0.029)	(0.131)	(0.035)
Prior: Employed (Public)	-0.135	-0.032	-0.197	0.072
	(0.144)	(0.045)	(0.209)	(0.047)
Prior: Unemployed	-0.170	0.029	-0.054	-0.019
	(0.111)	(0.040)	(0.167)	(0.051)
Prior: Inactive	-0.279**	-0.050	-0.196	-0.030
	(0.133)	(0.049)	(0.220)	(0.053)
Edu: High School	-0.170**	0.035	-0.301***	-0.013
	(0.071)	(0.025)	(0.114)	(0.027)
Edu: Bachelor	-0.137*	0.059**	-0.327**	-0.012
	(0.077)	(0.027)	(0.129)	(0.031)
Additional Firm Controls	Yes	Yes	Yes	Yes
Founder Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	3,584	3,561	2,672	3,583
R-squared	0.536	0.116	0.347	0.053

This table presents estimates from regressions of financing constraint measures on legal form choice. Variable definitions are presented in Table 1. In this setup, we use data from the survey sample, which is retrieved from the IAB/ZEW Start-up Panel. Standard errors are reported in parentheses and clustered at the firm level. *, **, and *** represent significance at the 10%, 5%, and 1% level, respectively.

Table 11: OLS: Survey Sample with full controls II

	Log(Short-Term Debt)	Financing Constraints	Bank Financing Constraints	No Funds Needed
	(1)	(2)	(3)	(4)
Low − Capital LLC	-0.407***	0.054*	0.058*	-0.041
	(0.143)	(0.032)	(0.030)	(0.029)
Capital	0.002***	0.000	0.000	-0.000
	(0.001)	(0.000)	(0.000)	(0.000)
Accumulated Profit/Loss	-0.000***	-0.000***	-0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Size	0.351***	-0.001	0.003	-0.003
	(0.033)	(0.004)	(0.004)	(0.004)
Age	-0.018	-0.086***	-0.083***	0.081***
	(0.097)	(0.018)	(0.017)	(0.019)
Tangible Assets	-2.773***	0.089*	0.050	-0.126***
	(0.248)	(0.047)	(0.045)	(0.047)
Patent Stock	0.018	0.005	-0.013	-0.034**
	(0.068)	(0.011)	(0.008)	(0.014)
Investments	0.006	-0.001	-0.001	-0.001
	(0.007)	(0.001)	(0.001)	(0.002)
R&D Expenses	0.017**	0.005***	0.003**	-0.006***
	(0.008)	(0.002)	(0.001)	(0.002)
Export	0.027***	0.002*	0.003**	0.001
	(0.007)	(0.001)	(0.001)	(0.001)
Employees at Start-Up	0.209**	0.005	0.009	-0.003
	(0.083)	(0.017)	(0.016)	(0.016)
Founders	0.123***	-0.004	-0.008	0.005
	(0.044)	(0.009)	(0.008)	(0.009)
Family Members	-0.013	0.006	-0.007	0.021
	(0.110)	(0.022)	(0.020)	(0.023)
Gender	-0.217*	-0.010	-0.003	0.036*
	(0.121)	(0.022)	(0.020)	(0.022)
Previous Enterprise	0.141	0.041**	0.039**	-0.045**
	(0.106)	(0.018)	(0.017)	(0.017)
Prior Experience	0.001	-0.002**	-0.002**	0.002***
	(0.004)	(0.001)	(0.001)	(0.001)
Motive: Business Idea	-0.105	0.020	0.008	-0.018
	(0.088)	(0.017)	(0.016)	(0.017)
Motive: No Emp. Opp.	0.091	0.053*	0.050*	-0.003
	(0.159)	(0.030)	(0.028)	(0.031)
Motive: Unemployment	-0.264	0.054	0.076*	-0.038
	(0.326)	(0.045)	(0.044)	(0.043)
Motive: Better Earnings	0.582***	-0.015	-0.002	0.049
	(0.185)	(0.044)	(0.043)	(0.045)
Prior: Self-Employed	-0.209	0.025	0.013	-0.020
	(0.133)	(0.024)	(0.023)	(0.025)
Prior: Employed (Private)	-0.154	-0.029	-0.026	0.009
	(0.128)	(0.024)	(0.023)	(0.025)
Prior: Employed (Public)	-0.464**	-0.064**	-0.065**	0.021
	(0.235)	(0.032)	(0.027)	(0.035)
Prior: Unemployed	-0.346*	0.045	0.027	-0.024
	(0.199)	(0.037)	(0.036)	(0.035)
Prior: Inactive	-0.448**	0.034	0.018	-0.058
	(0.187)	(0.039)	(0.035)	(0.037)
Edu: High School	-0.029	-0.017	-0.015	-0.002
	(0.107)	(0.020)	(0.018)	(0.019)
Edu: Bachelor	0.060	-0.008	0.010	0.017
	(0.107)	(0.023)	(0.022)	(0.022)
Additional Firm Controls	Yes	Yes	Yes	Yes
Founder Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	2,209	3,575	3,575	3,575
R-squared	0.371	0.094	0.083	0.436

This table presents estimates from regressions of financing constraint measures on legal form choice. Variable definitions are presented in Table 1. In this setup, we use data from the survey sample, which is retrieved from the IAB/ZEW Start-up Panel. Standard errors are reported in parentheses and clustered at the firm level. *, **, and *** represent significance at the 10%, 5%, and 1% level, respectively.

Table 12: OLS: Alternative Measures from Survey Data

	Access to Bank Loans (survey data)			% Inv. Financed by Ext. Funds		
	(1)	(2)	(3)	(4)	(5)	(6)
Low − Capital LLC	-0.169***	-0.085**	-0.081**	-0.059**	-0.119***	-0.089***
	(0.030)	(0.036)	(0.041)	(0.027)	(0.026)	(0.028)
Capital		-0.000	-0.000		0.000	0.000
		(0.000)	(0.000)		(0.000)	(0.000)
Accumulated Profit/Loss		0.000***	0.000**		-0.000***	-0.000***
		(0.000)	(0.000)		(0.000)	(0.000)
Size		0.038***	0.029***		-0.011**	-0.030***
		(0.005)	(0.005)		(0.005)	(0.006)
Age		0.093***	0.164***		-0.222***	-0.204***
		(0.027)	(0.029)		(0.018)	(0.020)
Tangible Assets		0.031	-0.039		0.455***	0.475***
		(0.062)	(0.064)		(0.048)	(0.051)
Patent Stock		-0.008	-0.016		0.051***	0.049***
		(0.009)	(0.013)		(0.011)	(0.014)
Investments			0.021***			0.067***
			(0.003)			(0.008)
R&D Expenses			-0.006**			0.005***
			(0.003)			(0.002)
Export			-0.005*			-0.005***
			(0.003)			(0.002)
Employees at Start − Up			0.058**			-0.008
			(0.028)			(0.018)
Founders			0.023			-0.006
			(0.015)			(0.010)
Family Members			-0.015			0.027
			(0.037)			(0.022)
Gender			-0.015			-0.025
			(0.038)			(0.023)
Previous Enterprise			-0.038			-0.001
			(0.032)			(0.021)
Prior Experience			-0.001			0.000
			(0.001)			(0.001)
Motive : Business Idea			0.019			0.067***
			(0.030)			(0.018)
Motive : No Emp. Opp.			0.064			-0.010
			(0.056)			(0.030)
Motive : Unemployment			0.051			0.050
			(0.091)			(0.062)
Motive : Better Earnings			0.026			0.008
			(0.079)			(0.052)
Prior : Self − Employed			-0.046			0.026
			(0.043)			(0.029)
Prior : Employed (Private)			0.011			0.039
			(0.039)			(0.028)
Prior : Employed (Public)			-0.006			0.009
			(0.065)			(0.040)
Prior : Unemployed			-0.039			0.052
			(0.054)			(0.038)
Prior : Inactive			-0.016			0.069*
			(0.060)			(0.042)
Edu : High School			0.004			-0.036*
			(0.033)			(0.021)
Edu : Bachelor			-0.035			-0.020
			(0.036)			(0.023)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,023	1,880	1,499	3,353	3,187	2,543
R-squared	0.114	0.173	0.230	0.105	0.230	0.296

This table presents estimates from regressions of debt and financing constraint measures on legal form choice. Variable definitions are presented in Table 1. In this setup, we use data from the survey sample, which is retrieved from the IAB/ZEW Start-up Panel. Standard errors are reported in parentheses and clustered at the firm level. *, **, and *** represent significance at the 10%, 5%, and 1% level, respectively.

Table 13: OLS: Relationship vs. Transactional Banks

Panel A: Full Sample			
	Log(Total Debt)	Log(Long-Term Debt)	Log(Short-Term Debt)
	(1)	(2)	(3)
$Low-Capital\,LLC \times Share\,Rel.\,Banks$	-0.052**	-0.113***	-0.026
	(0.024)	(0.035)	(0.033)
$Low-Capital\,LLC$	-0.728***	-0.768***	-0.713***
	(0.014)	(0.020)	(0.019)
$Capital$	0.006***	0.006***	0.005***
	(0.000)	(0.000)	(0.000)
$Accumulated\,Profit/Loss$	0.000***	-0.000	-0.000***
	(0.000)	(0.000)	(0.000)
$Size$	0.335***	0.274***	0.324***
	(0.002)	(0.003)	(0.003)
Age	0.121***	0.042***	0.132***
	(0.008)	(0.012)	(0.012)
$Tangible\,Assets$	-1.843***	-0.749***	-2.580***
	(0.020)	(0.028)	(0.029)
$Patent\,Stock$	0.029	0.038	0.013
	(0.022)	(0.030)	(0.014)
Additional Firm Controls	No	No	No
Founder Controls	No	No	No
Relationship Bank Regions FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Observations	364,960	244,682	215,539
R-squared	0.490	0.298	0.344

Panel B: Survey Sample

	Log(Total Debt)	Financing Constraints	Bank Financing Constraints	No Funds Needed
	(1)	(2)	(3)	(4)
$Low-Capital\,LLC \times Share\,Rel.\,Banks$	-0.379**	0.143**	0.099	-0.135**
	(0.167)	(0.072)	(0.069)	(0.066)
$Low-Capital\,LLC$	-0.481***	0.020	0.036	0.000
	(0.121)	(0.035)	(0.032)	(0.031)
$Capital$	0.003***	0.000	0.000	-0.000
	(0.001)	(0.000)	(0.000)	(0.000)
$Accumulated\,Profit/Loss$	-0.000*	-0.000***	-0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
$Size$	0.336***	0.001	0.006	-0.004
	(0.025)	(0.005)	(0.004)	(0.004)
Age	0.050	-0.072***	-0.069***	0.051**
	(0.062)	(0.019)	(0.017)	(0.020)
$Tangible\,Assets$	-1.636***	0.059	0.007	-0.100**
	(0.175)	(0.049)	(0.047)	(0.048)
$Patent\,Stock$	0.201***	0.002	-0.022*	-0.042**
	(0.053)	(0.017)	(0.013)	(0.020)
Additional Firm Controls	Yes	Yes	Yes	Yes
Founder Controls	Yes	Yes	Yes	Yes
Relationship Bank Regions FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	3,154	3,147	3,147	3,147
R-squared	0.529	0.138	0.127	0.483

This table presents estimates from regressions of debt and financing constraint measures on legal form choice. Variable definitions are presented in Table 1. In Panel A, we use data from the full sample, which is retrieved from the Orbis Historical Database. In Panel B, we use data from the survey sample, which is retrieved from the IAB/ZEW Start-up Panel. Standard errors are reported in parentheses and clustered at the firm level. *, **, and *** represent significance at the 10%, 5%, and 1% level, respectively.

Table 14: OLS: Trade Credit Dependence

Panel A: Full Sample

	Log(Total Debt)	Log(Long-Term Debt)	Log(Short-Term Debt)
	(1)	(2)	(3)
$Low-Capital\,LLC \times Trade\,Credit$	-0.137***	-0.070**	-0.205***
	(0.024)	(0.034)	(0.033) 7)
$Low-Capital\,LLC$	-0.605***	-0.728***	-0.515***
	(0.027)	(0.039)	(0.038)
$Trade\,Credit$	0.099***	0.045***	0.164***
	(0.011)	(0.015)	(0.016)
$Capital$	0.006***	0.006***	0.005***
	(0.000)	(0.000)	(0.000)
$Accumulated\,Profit/Loss$	0.000***	-0.000	-0.000***
	(0.000)	(0.000)	(0.000)
$Size$	0.335***	0.275***	0.323***
	(0.002)	(0.003)	(0.003)
Age	0.126***	0.043***	0.136***
	(0.008)	(0.011)	(0.012)
$Tangible\,Assets$	-1.858***	-0.771***	-2.579***
	(0.020)	(0.027)	(0.028)
$PatentStock$	0.033	0.042	0.016
	(0.024)	(0.031)	(0.015)
Additional Firm Controls	No	No	No
Founder Controls	No	No	No
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Observations	384,655	257,656	227,375
R-squared	0.487	0.296	0.343

Panel B: Survey Sample

	Log(Total Debt)	Financing Constraints	Bank Financing Constraints	No Funds Needed
	(1)	(2)	(3)	(4)
$Low-Capital\,LLC \times Trade\,Credit$	-0.065	0.024	0.004	0.007
	(0.209)	(0.077)	(0.075)	(0.067)
$Low-Capital\,LLC$	-0.600**	0.030	0.054	-0.048
	(0.240)	(0.082)	(0.080)	(0.074)
$Trade\,Credit$	-0.021	-0.012	-0.011	0.041
	(0.085)	(0.032)	(0.029)	(0.030)
$Capital$	0.002***	0.000	0.000	-0.000
	(0.001)	(0.000)	(0.000)	(0.000)
$Accumulated\,Profit/Loss$	-0.000***	-0.000***	-0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
$Size$	0.353***	-0.001	0.003	-0.003
	(0.025)	(0.004)	(0.004)	(0.004)
Age	0.068	-0.086***	-0.083***	0.082***
	(0.061)	(0.018)	(0.017)	(0.019)
$Tangible\,Assets$	-1.798***	0.088*	0.050	-0.126***
	(0.169)	(0.047)	(0.045)	(0.047)
$PatentStock$	0.117**	0.005	-0.013	-0.034**
	(0.046)	(0.011)	(0.008)	(0.014)
Additional Firm Controls	Yes	Yes	Yes	Yes
Founder Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	3,584	3,575	3,575	3,575
R-squared	0.536	0.095	0.083	0.437

This table presents estimates from regressions of debt and financing constraint measures on legal form choice. Variable definitions are presented in Table 1. In Panel A, we use data from the full sample, which is retrieved from the Orbis Historical Database. In Panel B, we use data from the survey sample, which is retrieved from the IAB/ZEW Start-up Panel. Standard errors are reported in parentheses and clustered at the firm level. *, **, and *** represent significance at the 10%, 5%, and 1% level, respectively.

Table 15: Foreign Ownership and external Financing

	Log(Total Debt)
$Foreign\,Owner$	-0.082
	(0.135)
$Low-Capital\,LLC$	-0.659***
	(0.099)
$Capital$	0.002***
	(0.001)
$Accumulated\,Profit/Loss$	0.000***
	(0.000)
$Size$	0.353***
	(0.025)
Age	0.068
	(0.061)
$Tangible\,Assets$	-1.795***
	(0.170)
$Patent\,Stock$	0.117**
	(0.046)
Additional Firm Controls	Yes
Founder Controls	Yes
Year FE	Yes
Industry FE	Yes
Observations	3,584
R-squared	0.536

This table presents estimates from regressions of debt on foreign ownership. Variable definitions are presented in Table 1. In this setup, we use data from the survey sample, which is retrieved from the IAB/ZEW Start-up Panel. Standard errors are reported in parentheses and clustered at the firm level. *, **, and *** represent significance at the 10%, 5%, and 1% level, respectively.

Table 16: Instrumental Variable Estimation

	Survey Sample - No Controls		Survey Sample - All Controls				
	First stage	Second stage	First stage	Second stage	Second stage	Second stage	Second stage
	Low-Capital LLC	Log(Total Debt)	Low-Capital LLC	Log(Total Debt)	Financing Constraints	Bank Financing Constraints	No Funds Needed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Low − Capital LLC		-2.725**		-1.496	1.110**	0.961*	-1.033*
		(1.358)		(1.387)	(0.558)	(0.545)	(0.547)
Foreign Owner	0.103***		0.098**				
	(0.036)		(0.043)				
Capital	-0.001**	0.002*	-0.000***	0.002**	0.000	0.000	-0.001
	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Accumulated Profit/Loss			0.000	-0.000***	-0.000***	-0.000***	0.000***
			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Size			-0.023***	0.335***	0.023*	0.024*	-0.026*
			(0.004)	(0.041)	(0.014)	(0.013)	(0.014)
Age			-0.035***	0.039	-0.048*	-0.051*	0.046
			(0.012)	(0.078)	(0.029)	(0.027)	(0.029)
Tangible Assets			0.167***	-1.656***	-0.094	-0.106	0.046
			(0.038)	(0.302)	(0.115)	(0.106)	(0.113)
Patent Stock			-0.001	0.116***	0.007	-0.012	-0.036**
			(0.005)	(0.044)	(0.011)	(0.009)	(0.015)
Additional Firm Controls	No	No	Yes	Yes	Yes	Yes	Yes
Founder Controls	No	No	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,569	8,569	3,584	3,584	3,575	3,575	3,575
R-squared		0.125		0.415	-0.421	-0.349	-0.353

This table presents IV estimates from regressions of debt and financing constraint measures on legal form choice. Variable definitions are presented in Table 1. We use data from the survey sample, which is retrieved from the IAB/ZEW Start-up Panel. Standard errors are reported in parentheses and clustered at the firm level. *, **, and *** represent significance at the 10%, 5%, and 1% level, respectively.

Table 17: Regression Discontinuity Design

Panel A: Full sample						
Range at Cut-off Point:	(-12,500; +12,500)		(-5,000; +5,000)		(-2,500; +2,500)	
	Log(Total Debt)		Log(Total Debt)		Log(Total Debt)	
	(1)	(2)	(3)	(4)	(5)	(6)
RD estimate	1.435***	1.382***	1.071***	1.331***	1.298**	1.592***
	(0.286)	(0.284)	(0.387)	(0.339)	(0.662)	(0.288)
Controls	No	Yes	No	Yes	No	Yes
Observations	29,973	24,353	19,062	15,271	17,678	14,154

Panel B: Survey sample

Range at Cut-off Point:	(-12,500; +12,500)		(-12,500; +12,500)		(-12,500; +12,500)		(-12,500; +12,500)	
	Log(Total Debt)		Financing Constraints		Bank Financing Constraints		No Funds Needed	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
RD estimate	2.104***	-3.040	-0.473**	-0.341	-2.512***	-2.641***	1.364***	1.498*
	(0.696)	(3.477)	(0.229)	(0.322)	(0.224)	(0.359)	(0.461)	(0.833)
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Observations	897	357	468	356	468	356	468	356

This table presents the results for the RDD estimates using different boundaries around the threshold of 25,000 that defines high- and low-capital LLCs in Germany. Firms in our sample that have less (more) than 25,000 in equity capital are low-capital LLCs (high-capital LLCs). Standard errors are reported in parentheses and clustered at the firm level. *, **, and *** represent significance at the 10%, 5%, and 1% level, respectively

Table 18: Difference-in-Difference Regression

	Log(Total Debt)		Log(Long-Term Debt)		Log(Short-Term Debt)	
	(1)	(2)	(3)	(4)	(5)	(6)
$Post\,Switch \times Low - Capital\,LLC$	0.652***	0.141***	0.607***	0.228***	0.634***	0.159***
	(0.038)	(0.030)	(0.057)	(0.053)	(0.057)	(0.049)
$Capital$		0.003***		0.003***		0.002***
		(0.000)		(0.001)		(0.001)
$Accumulated\,Profit/Loss$		-0.001***		-0.001***		-0.001***
		(0.000)		(0.000)		(0.000)
$Size$		0.233***		0.189***		0.237***
		(0.003)		(0.004)		(0.004)
Age		0.449***		0.146***		0.450***
		(0.014)		(0.023)		(0.026)
$Tangible\,Assets$		-0.895***		0.206***		-1.582***
		(0.028)		(0.041)		(0.045)
$Patent\,Stock$		0.055***		0.053***		0.054**
		(0.013)		(0.019)		(0.022)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	434,741	317,909	256,277	206,097	226,375	175,789
R-squared	0.881	0.893	0.816	0.794	0.804	0.802

This table presents the results for difference-in-differences regressions of debt. The treated group are firms that switched legal forms from a low-capital LLC to a high-capital LLC in our sample period. The control group are permanent high-capital LLCs (i.e. firms that opted for the legal form high-capital LLC (GmbH) at startup). Variable definitions are presented in Table 1. We use data from the full sample, which is retrieved from the Orbis Historical Database. In the survey sample, we do not observe sufficient firms that switch legal form. Standard errors are reported in parentheses and clustered at the firm level. *, **, and *** represent significance at the 10%, 5%, and 1% level, respectively.

Table 19: Descriptive Statistics: Austrian Sample

	Low-Capital LLC (pre switch)		High-Capital LLC (post switch)	
	N: 920		N: 945	
	Mean	Std. Dev.	Mean	Std. Dev.
$Low - Capital\,LLC$	1	0	0	0
$Total\,Debt_{(\times 1000)}$	192.636	455.596	384.618	639.912
$Log(Total\,Debt)$	10.485	2.148	11.647	1.786
$Access\,to\,Long - Term\,Debt$	0.950	0.218	0.977	0.150
$Long - Term\,Debt_{(\times 1000)}$	196.580	462.805	374.474	635.952
$Log(Long - Term\,Debt)$	10.393	2.315	11.495	1.946
$Capital_{(\times 1000)}$	7.500	2.758	32.860	13.136
$Accumulated\,Profit/Loss_{(\times 1000)}$	3.851	108.561	28.152	218.480
$Size$	8.121	4.024	9.027	3.789
Age	0.614	0.772	1.956	0.858
$Tangible\,Assets$	0.250	0.294	0.256	0.300

This table presents summary statistics for Austrian low- and high-capital LLCs. Corresponding variable definitions can be found in Table 1. All monetary values are in euro.

Table 20: Regression Discontinuity Design: Austrian Sample

Range at Cut-off Point:	(-17,500; +17,500)		(-12,500; +12,500)		(-5,000; +5,000)	
	Log(Total Debt)		Log(Total Debt)		Log(Total Debt)	
	(1)	(2)	(3)	(4)	(5)	(6)
RD estimate	0.012	0.264***	-0.151	0.174	-0.034	0.631
	(0.084)	(0.070)	(0.246)	(0.200)	(0.493)	(0.450)
Controls	No	Yes	No	Yes	No	Yes
Observations	44,796	30,995	26,587	18,825	15,177	10,699

This table presents the results for the RDD estimates using different boundaries around the threshold of 17,500 that defines placebo high- and placebo low-capital LLCs in Austria. Firms in our sample that have less (more) than 17,500 in equity capital are placebo low-capital LLCs (placebo high-capital LLCs). Standard errors are reported in parentheses and clustered at the firm level. *, **, and *** represent significance at the 10%, 5%, and 1% level, respectively.

Table 21: Difference-in-Difference Regression: Austrian Sample

	Log(Total Debt)	Access to Long-Term Debt	Log(Long-Term Debt)
	(1)	(2)	(3)
$Post\,Switch \times Low - Capital\,LLC$	0.017	0.015*	0.064
	(0.090)	(0.009)	(0.103)
Capital	0.484*	-0.078***	0.435
	(0.274)	(0.028)	(0.286)
$Accumulated\,Profit/Loss$	-0.070***	-0.000	-0.107***
	(0.008)	(0.001)	(0.009)
Size	0.172***	0.003***	0.176***
	(0.006)	(0.001)	(0.007)
Age	0.894***	0.001	0.788***
	(0.044)	(0.005)	(0.051)
Tangible Assets	-0.292***	0.004	-0.220***
	(0.068)	(0.006)	(0.074)
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	41,807	42,418	41,678
R-squared	0.887	0.586	0.872

This table presents the results for difference-in-differences regressions of debt. The Austrian treated group are firms that switched legal forms from a placebo low-capital LLC to a placebo high-capital LLC in our sample period. The control group are permanent high-capital LLCs (i.e. firms that opted for paid-in capital of 17,500 euro at startup). Variable definitions are presented in Table 1. We use data from Orbis Historical Database. Standard errors are reported in parentheses and clustered at the firm level. *, **, and *** represent significance at the 10%, 5%, and 1% level, respectively.

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