Fresh start policies and small business activity: evidence from a natural experiment[†]

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Abstract

There is no consensus in the literature on whether personal bankruptcy laws should be creditor-friendly or debtor-friendly in order to promote entrepreneurship and small business activity. This paper contributes to that literature by analyzing the effect of the introduction of a fresh start policy in Spain in 2015 on the performance of micro-firms as a natural experiment, using Spanish non-micro firms and all Portuguese firms as control groups. We find that the reform raised substantially both the probability of filing for bankruptcy by Spanish micro-firms in financial distress (arguably to seek debt discharge for the business owner) and the probability that those firms exited the market because the policy required the liquidation of the debtor's non-exempt assets. In addition, the reform increased investment and turnover in micro-firms but had no effect on their employment. Finally, the reform also promoted firm creation among micro-firms, especially in those involved in innovation activities and in sectors with high productivity.

Keywords: Personal bankruptcy; Fresh start; Small business; Entrepreneurship

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1. Introduction

The literature is divided about the effect of personal bankruptcy laws on entrepreneurship and small business activity. Personal bankruptcy laws are of interest to sole proprietors and owners of small corporate firms (henceforth, micro-firms) because lenders often require a personal guarantee or collateral provided by the firm's owner (Berkowitz and White, 2004; Ono and Uesugi, 2009; Berger et al., 2011; Ogawa et. al., 2013; Peltoniemi and Vieru, 2013; Mayordomo et al., 2021).[1]

The impact of personal insolvency laws on entrepreneurship and the performance of small businesses depends on two opposite effects: a "credit supply effect" and an "insurance effect". On the one hand, creditor-friendly bankruptcy laws deter debtors' moral hazard and increase recovery rates in case of bankruptcy, thereby reducing the risk premium charged on loans to entrepreneurs and small firms and facilitating their access to credit (the "credit supply effect"). On the other hand, more lenient debtor-friendly laws provide partial insurance against business failure (the "insurance effect"), which may incentivize risk-averse agents to undertake entrepreneurial activities.

This paper contributes to the existing literature by analyzing a reform of the personal bankruptcy code in Spain in 2015, which introduced a fresh start policy, as a natural experiment. Before this legal reform, virtually no discharge actually existed for individual debtors in Spain, beyond the exemption of certain assets and earnings at the level of subsistence. The principle enshrined in Article 1911 of the Spanish Civil Code (*Debtors will be held accountable for their financial liabilities with all of their present and future earnings and assets*) was in full force.

Our main empirical methodology is the Difference-in-difference-in-differences (DDD) estimator in which we analyze the effect of the introduction of the fresh start policy on Spanish micro-firms[2] (the treatment group) relative to Spanish non-micro firms and all Portuguese firms (the two control groups) during the period 2013-2016. Portugal is

[1] Personal guarantee refers to the commitment of the firm's owner (or its partners) to honor the firm's debt with her wealth or personal assets in case of default by the original borrower (i.e., the company). Collateral refers to specific assets (real estate, financial or movable assets, other assets) that can be seized by the lender in case of default by the firm.

[2] As we follow the European Commission definition, micro-firms are those that have less than 10 employees and a turnover of less than € 2 million or total assets less than € 2 million. https://ec.europa.eu/growth/smes/sme-definition_es

selected as the control country because of the clear institutional and cultural similarities with Spain and because there were no reforms of the personal bankruptcy law in Portugal between 2013 and 2016.[3] The DDD estimator is more robust to violations of the parallel trends assumption than the traditional Difference-in-Differences (DD) estimator (Imbens and Wooldridge, 2007; Wooldridge, 2010; Olden and Møen, 2020).

For that purpose, we make use of a large confidential dataset that contains balance-sheet data and other non-financial information of thousands of hundreds of non-financial corporations of Spain and Portugal, coupled with confidential firm-level data on bankruptcy proceedings from the National Central Banks of Spain and Portugal.

Our empirical analyses deliver a number of findings. First, the introduction of the fresh start policy in 2015 increased substantially the probability of filing for bankruptcy by Spanish micro-firms (relative to the rest of firms in financial distress). However, the reform only raised significantly the probability of filing for bankruptcy by Spanish micro-firms with high ratios of dischargeable debt to total assets relative to the rest of distressed firms in that group. Therefore, while out-of-court restructuring agreements are generally cheaper than formal bankruptcy proceedings, and less subject to the holdout problem in small firms with few creditors than in large companies (Morrison, 2008 and 2009), our results indicate that the possibility of obtaining a debt discharge in personal bankruptcy for the business owners and partners encouraged the use of the latter.

Second, the 2015 reform increased the probability that Spanish micro-firms in financial distress exited the market via a bankruptcy proceeding vis-à-vis the use of informal methods such as private workouts with their creditors. The rationale behind is that the Spanish fresh start policy, by requiring the liquidation of the debtor's non-exempt assets[4], does not help distressed micro-firms continue as a going concern, but rather leads those firms to exit the market. However, by reducing the amount of past debt that must be repaid with future earnings and assets, the debt discharge should incentivize entrepreneurs to undertake new economic activities after the first bankruptcy, rather than being

[3] A similar approach is implemented by Araujo et al. (2012), who analyze the effect of a bankruptcy reform in Brazil on the credit market by comparing Brazilian firms (the treatment group) to non-Brazilian firms from Argentina, Chile and Mexico (the control group).

[4] According to the Spanish law, exempt assets comprise few items and with low value, essentially a few assets necessary for survival (e.g. basic furniture and clothing, books and tools required for the debtor's job, inexpensive religious objects, etc.)

discouraged from entrepreneurship or work in the open labor market and to resort to the shadow economy to avoid repaying the creditors from the previous business venture.

We then analyze the real effects of the introduction of the fresh start policy on Spanish micro-firms. This is a research question that needs to be answered empirically because the sign of those effects is a priori ambiguous, as the reform could incentivize the owners of small businesses to invest more in capital and hire more employees, but could also raise the interest rates on bank loans to those firms and restrict their access to credit. Our results indicate that the reform led to a modest increase in investment but had no effect on firms' employment. Probably as a consequence, the turnover of those companies also grew moderately. In particular, we only find those positive real effects in firms with low shares of public credit (essentially taxes and social security contributions) and staff debt (wages and related debt towards employees) to their total debt levels. Both categories of debt are in principle non-dischargeable. This implies that the fresh start policy is not very helpful to firms with a high share of non-dischargeable debt, since the "insurance effect" is very limited for them.

Finally, we also study the effect of the reform on firm entry. The overall effect of the policy again depends on the relative strength of the "insurance effect", which may incentivize risk-averse agents to start new small businesses, and the "credit supply effect", which may restrict their access to credit. This second effect may be especially acute in the case of startups because they are more opaque to creditors due to their lack of a track record (Cerqueiro and Penas, 2017). Our results indicate that the introduction of the fresh start policy promoted firm creation among Spanish micro-firms, especially in companies with a high share of intangible assets, which are likely to be involved in innovation activities, and in sectors with high productivity. This finding also suggests that a starkly pro-creditor personal bankruptcy law with no real fresh start, like the Spanish one before 2015, may be an important barrier to entry for small businesses.

Therefore, our main results show that the introduction of the fresh start policy amplified the entry and exit dynamics of Spanish micro-firms, which accounted for about 45% of all Spanish firms during the sample period. Accordingly, the reform of the personal

bankruptcy law bolstered the process of creative destruction (Schumpeter, 1942) among those companies, which leads to technological change and higher productivity growth.[5]

The remainder of the paper is organized as follows. Section 2 reviews the most relevant literature. Section 3 describes the introduction of the fresh start policy in Spain and the reforms of the bankruptcy law in Portugal during the last decade, as well as the institutional similarities between the two countries. Section 4 explains the identification strategy and the main econometric techniques. Section 5 spells out the construction of the sample, the variables used in the empirical analyses and some descriptive statistics. Section 6 presents the main empirical results concerning the effect of the reform on Spanish micro-firms. Finally, Section 7 concludes.

2. Literature review

There is no consensus in the literature on whether personal bankruptcy laws should be creditor-friendly or debtor-friendly in order to promote entrepreneurship and small business activity. As previously explained, creditor-friendly bankruptcy laws prevent debtors' opportunistic behavior and increase recovery rates, which reduces the credit constraints faced by entrepreneurs and small businesses (the "credit supply effect"). Accordingly, Berkowitz and White (2004) show that small firms located in US states with unlimited homestead exemptions are more likely to be denied credit, obtain smaller loans and pay higher interest rates compared to small firms in US states with low homestead exemptions. Similar results are reported by Berger et al. (2011). In addition, Cerqueiro and Penas (2017) find that high exemptions may reduce access to credit especially to startups, which are more opaque to creditors (Berger et al., 2001), decreasing their employment and operating efficiency and making them more likely to fail.

By contrast, debtor-friendly laws, by providing partial insurance against business failure (the "insurance effect"), incentivize risky entrepreneurial activities. Consistent with this channel, Fan and White (2003), making use of the state variation in bankruptcy exemption levels in the US, document a positive relationship between exemptions and the number of startup companies. They argue that higher exemption levels benefit potential

[5] The Spanish economy is an appealing laboratory because is characterized by a lethargic business demography that hampers creative destruction. In particular, Nuñez (2004) showed that the turnover rate (sum of entry and exit rates) in Spain was 16 % lower than that in other countries analyzed except Germany, while López-García and Puente (2007) reached the same conclusion in the context of OECD countries. García-Posada and Mora-Sanguinetti (2015) also found that both entry and exit rates in Spain were lower than the European average.

entrepreneurs who are risk averse by providing partial wealth insurance. However, these findings have been challenged by Cerqueiro et al. (2019), who show that more lenient bankruptcy laws across US states only increase firm entry in sectors requiring low startup capital, while they increase firm exit and job destruction rates among very small firms. According to the authors, the mechanisms affecting those firm dynamics include both a decrease in credit supply (the "credit supply effect") and the entry of lower quality companies, which are quickly driven out of business, following an increase in exemption levels. These results are corroborated by the theoretical analysis of Meh and Terajima (2008), who conclude that the personal bankruptcy system is desirable but it must be well designed in a way that carefully limits asset exemptions. By contrast, Ayotte (2007) shows that personal bankruptcy laws that provide a fresh start are better suited for small entrepreneurial firms than corporate bankruptcy laws that contain the absolute priority rule (APR). The reason is that those firms are characterized by an ongoing dependence on a liquidity-constrained owner/manager, whose effort is essential to the firm's value. Therefore, the entrepreneur must be incentivized to exert effort through an ownership stake in the firm's future output. A fresh start policy, by granting a higher debt discharge than that of a bankruptcy law that includes the APR, increases the stake for the entrepreneur and thereby her effort, which generates a greater social surplus.

In an international perspective, Armour and Cumming (2008), using panel data for fifteen countries in Europe and North America, document a negative relationship between severity of personal bankruptcy laws[6] and entrepreneurship, as proxied by self-employment rates. Fossen (2014), who studies the introduction of a fresh start policy in Germany, finds that the insurance effect of a more forgiving personal bankruptcy law exceeded the effect on interest rates and thus encouraged less wealthy individuals to become entrepreneurs (both effects are less relevant for wealthy potential entrepreneurs, who still risk losing part of their wealth, but tend not to face higher interest rates because they provide collateral). By contrast, Paik (2013) examines a pro-creditor bankruptcy reform in the US[7] and shows that it had no effect on entrepreneurial activity, partly because potential entrepreneurs were more likely to seek limited liability offered by

[6] Measured by the years after bankruptcy until a debt discharge is allowed, exemptions and restrictions on the debtor's civil and economic rights, amongst others.
[7] The Bankruptcy Abuse Prevention and Consumer Protection Act of 2005.

incorporation as a way of offsetting the reduction in wealth protection imposed by the new law.[8]

3. Institutional framework

3.1 The introduction of a fresh start policy in Spain

Before 2015, the chances of individual debtors to obtain a debt discharge were extremely remote.[9] According to article 1911 of the Civil Code, a cornerstone of the legal regime of contracting and credit in Spain: "Debtors will be held accountable for their financial liabilities with all of their present and future earnings and assets". In the view of organizations such as the IMF, the World Bank and the OECD, this institutional feature was a drag on entrepreneurship, productivity and economic growth.[10]

Against this backdrop, the Spanish Government implemented in 2015 -in a very swift manner, without going through full parliamentary discussion of a draft law- a reform of the personal bankruptcy code that introduced a fresh start policy in Spain.[11] Under the 2015 reform, individual debtors (both entrepreneurs and consumers) are allowed to submit to the Court a five-year repayment plan after the liquidation of all their non-exempt assets. If the plan is approved, their unsecured and subordinate credit[12] are immediately discharged (except for any public or alimony claims), as long as the debtor complies with the plan or shows a significant effort to comply with it -as explained below. In the case of secured credit (i.e., claims secured with collateral), the part not settled by enforcement of the collateral is also discharged. The repayment plan consists of settling non-discharged debts (preferential and privileged credit,[13] other public claims and

[8] Other studies that analyze reforms of the *corporate* bankruptcy law as natural experiments are Visaria and (2009) and Vig (2013) in India, Rodano et al. (2016) in Italy, Araujo et al. (2012) and Ponticelli and Alencar (2016) in Brazil, Canipek et al. (2019) in Germany and Agrawal et al. (2021) in Denmark.

[9] There was a timid reform of the Spanish bankruptcy code in 2013 (*Ley 14/2013, de emprendedores*) that introduced a very limited debt discharge under very stringent conditions. In particular, it allowed individual debtors to have their unpaid claims forgiven – excluding public claims (essentially taxes and social security contributions) which could not be discharged – after liquidating their non-exempt assets to pay creditors, provided that all preferential, secured and privileged credit was settled and also, unless an attempt to reach a settlement with creditors had failed through no fault of the debtor, 25% of the ordinary credit. Accordingly, this system only permitted discharge of unsecured and subordinate credit, and eventually not all of it.

[10] See IMF (2013, 2014 and 2015).

[11] For a description and assessment of the personal and corporate bankruptcy laws in Spain see García-Posada (2020).

[12] Unsecured credit includes credit facilities, trade credit, credit cards, consumer loans, etc. Subordinated credit comprises debts with persons who have special relationships with the insolvent firm (companies belonging to the same group, directors, shareholders, etc.) and some other types of claims, such as interest, penalties, fines, etc.

[13] Preferential credit includes wages for the last month of business activity, the cost of the proceedings, including remuneration for the insolvency administrator and for attendance and representation of the debtor,

alimony claims) over the five years following the closure of the insolvency. Upon expiry of that period, and if the repayment plan has not been complied with in full, the judge hearing the insolvency proceedings may declare any unpaid claims to be definitively discharged, provided the debtor has made a substantial effort to comply, understood as having assigned at least 50% of her non-exempt earnings[14] to satisfy payments under the plan (the threshold goes down to 25% for vulnerable debtors). To benefit from a debt discharge following a repayment plan, debtors must satisfy a series of ex ante requirements including, in particular, not having obtained a debt discharge in the last ten years and not having rejected an offer of employment in accordance with their abilities in the four years prior to the insolvency.

In Figures 1 and 2 we provide aggregate descriptive statistics regarding bankruptcy filings by consumers and self-employed (Figure 1) and by non-financial corporations (Figure 2) during the period 2005-2020. Note that the figures on bankruptcy proceedings in 2020 must be interpreted with caution because of the insolvency moratorium established by the Spanish Government in the context of the Covid-19 crisis[15], which constitute two additional drivers of bankruptcy filings. The purpose of our later econometric analyses (Section 6) will be to disentangle the various drivers of the data and, in particular, to single out the effect of the 2015 reform.

Figure 1 shows a significant growth in bankruptcy filings, both by self-employed and, to a greater extent, by consumers, between 2015 and 2020. In particular, insolvencies among the self-employed rose from 182 in 2015 to 637 in 2020, a relative increase of 250%, while consumer bankruptcies rose from 649 in 2015 to 4,032 in 2020, a relative increase of 521%. The main reason of the higher rise in consumer bankruptcies is arguably that public claims, which often account for a significant part of the debt of the self-employed, are non-dischargeable, as previously explained. This reduces the appeal of the fresh start

any new debts assumed by the firm in the pursuit of its activity after the insolvency declaration has been made, including workers' claims, and 50% of any fresh money, i.e., any new funding granted in the framework of a refinancing agreement. Privileged credit has to be paid before ordinary credit and comprises other claims deriving from employment relationships not qualifying as preferential, as well as those of tort and public sector creditors, and the remaining 50% of fresh money injected through a refinancing agreement.

[14] Non-exempt earnings are income below the national minimum wage and a certain percentage of income over that amount, pursuant to the provisions of Article 607 of the Civil Procedure Law.

[15] Against the backdrop of the economic crisis triggered by the Covid-19, in April 2020 the Spanish Government approved an insolvency moratorium for all debtors, be they firms or individuals. Specifically, it suspended until 31 December 2020 the requirement that debtors must file for insolvency, i.e., voluntary filing (*concurso voluntario*) and it prevented their creditors from initiating filings (*concurso necesario*) before that date. The moratorium was later extended until 30 June 2022.

policy for some highly indebted self-employed. By contrast, insolvent consumers (generally unemployed or low-paid employees) do not usually have large amounts of this type of debt, as taxes and social security contributions are withheld by their employers and directly paid to the Government. In addition, consumer bankruptcies are overseen by the First Instance Civil Courts, which tend to be somewhat less congested than the Mercantile Courts, the competent courts for the insolvencies of sole proprietorships and companies (Celentani and Gómez Pomar, 2020).

Figure 2 depicts the evolution of bankruptcy filings by micro-firms and non-micro firms during the same period, where micro-firms are defined as companies with less than 10 employees in Panel A and as companies with a turnover of less than € 2 million in Panel B. Regarding Panel A, it should be noted that, although bankruptcy filings by micro-firms and non-micro firms started to decrease from 2014, at the beginning of the recovery of the Spanish economy after the burst of the housing market bubble and the sovereign debt crisis, the relative decline during the period 2015-2020 was much lower in the former than in the latter. In particular, bankruptcy filings by micro-firms decreased by 6.3% between 2015 and 2020 (from 3,464 to 3,247 procedures), while bankruptcy filings by non-micro firms fell by 15.2% during the same period (from 1,143 to 969). Similarly, Panel B shows that bankruptcy filings by micro-firms only declined by 1% between 2015 and 2020 (from 3,452 to 3,419 procedures) while bankruptcy filings by non-micro firms decreased by 26.4% during the same period (from 1,645 to 1,211). This (unconditional) evidence suggests that, due to the widespread use of personal guarantees to obtain credit by micro-firms, the reform made more appealing to file for bankruptcy by owners of micro-firms than by shareholders of larger companies, with a much more dispersed ownership structure that makes the use of those guarantees more limited.

Despite these developments, personal bankruptcy rates (number of personal bankruptcy filings per 10,000 people) are still very low in comparison with other European countries. In the case of the self-employed, in 2019 there were 2.2 insolvencies per 10,000 self-employed in Spain, relative to 31.8 in France and 74 in England and Wales. Likewise, in 2019, there were 0.5 consumer insolvencies per 10,000 inhabitants in Spain, relative to 2.5 in England and Wales.[16] In addition, a similar comparison of business bankruptcy rates (number of business bankruptcy filings per 10,000 firms) also reveals the low use

[16] Sources: the Spanish National Statistics Institute (INE), Altares (2019), Eurostat and The Insolvency Service.

of insolvency procedures by micro-firms in Spain. In particular, in 2019 there were 9.5 insolvencies per 10,000 micro-firms in Spain, 11 times fewer than in France, where there were 104.8. In the case of firms with 10 or more employees, Spain's business bankruptcy rate was also lower than that of France in 2019, but the difference was substantially smaller: 65.8 compared with 179.2, i.e., the Spanish bankruptcy rate was 2.7 times lower than the French rate in this business segment.

3.2 Bankruptcy reforms in Portugal

In the following, we summarize the main changes that took place along the past decade concerning bankruptcy law in Portugal and affecting SMEs. First, in the aftermath of the financial crisis affecting the Eurozone, the intervention of the ECB, the EU Commission and the IMF led to a change in the Bankruptcy Code to establish a so-called special reorganization procedure or PER (*Processo Especial de Revitalização*) in 2012. The new scheme tried to provide a quicker and less court-dominated path to debt renegotiation and financial reorganization of debtors in financial distress than the existing one. It allowed an out-of-court reorganization agreed by the debtor and creditors and later submitted to the court for approval, in addition to a court proceeding in which debtor and creditors negotiate and vote on reorganization. The PER entails a standstill of enforcement actions against the debtor's assets and the outcome of the approved plan is binding on dissenting creditors. Fresh money receives favourable treatment. Although debtor remains in possession of the firm, management is supervised by an external judicial administrator. PER was well-received and widely used by firms, although doubts were raised about its availability to individuals. For an analysis of the effect of the introduction of PER on the labor market in Portugal see Bonfim and Nogueira (2021).

In 2017, the law was amended to establish that only firms could resort to PER. A new, parallel scheme called PEAP (*Plano Especial para Acordo de Pagamento*) was created for individual debtors. PEAP also intends to keep debtors out of formal bankruptcy proceedings and to encourage an agreement between debtor and creditors to set out a credible payment plan that the debtor can afford. There are some special provisions on personal needs of the debtor, and the scheme is managed by a court-appointed administrator, and otherwise runs with little court intervention.

In 2018, in view of a sense of dissatisfaction with how the existing mechanisms allowed early steps to save viable firms, a new fully out-of-court negotiation framework for debtor

firms (consumers are excluded from its application) and creditors was introduced. This new RERE (*Regime Extrajudicial de Recuperação de Empresas*) is based on voluntary negotiations, subject to certain guidelines as to the protocol governing the debtor-creditors negotiation. It does not prevent enforcement actions from non-participating creditors, nor the start of formal bankruptcy proceedings. The goal of RERE is to encourage parties to reach a reorganization agreement that would improve the capital structure of the debtor, with possible effects over assets and liabilities in a broad fashion and with very few constraints, except to the benefit of the commitments and obligations towards the debtor's employees.

For consumers, the Portuguese system only provides for a less ambitious mechanism, the PERSI (*Procedimento Extrajudicial de Regularização de Situações de Incumprimento*) affecting individual overindebtedness *vis-à-vis* financial institutions, which is hardly ever used. It was introduced in 2012.

3.3 Institutional similarities between Spain and Portugal

A common institutional feature between Spain and Portugal is that bankruptcy proceedings are very lengthy in both countries. Using confidential firm-level data from Banco de España and Banco de Portugal (see Section 5.1), we find that the average length of bankruptcy proceedings initiated between 2011 and 2017 was 40 months in Spain[17] and 35 months in Portugal in a sample of 19,791 Spanish and 16,187 Portuguese companies. In addition, those procedures are costly, as they account for 11% of the debtor's assets in Spain and 9% in Portugal, according to the survey of the World Bank's Doing Business.[18]

As a consequence, insolvency procedures are relatively unappealing for financially distressed firms, which generally file for bankruptcy only as a last resort, when their financial situation is already extremely vulnerable (see Section 5.3). Therefore, another common feature between Spain and Portugal is the low use of formal bankruptcy proceedings by firms in both countries. According to Claessens and Klapper (2005) out of 35 countries in Europe, America and Asia, Spain had the lowest bankruptcy rate, of 2, only close to Peru (5) and Portugal (8) during the 1990s. More recent data reveal a same

[17] García-Posada and Vegas (2018) report a similar figure using a sample of more than 44,000 insolvencies from 1 September 2004 (the date of entry into force of the Spanish Bankruptcy Law) to 16 February 2016.
[18] The cost of the proceedings is calculated on the basis of questionnaire responses and includes court fees and government levies; fees of insolvency administrators, auctioneers, assessors and lawyers; and all other fees and costs.

pattern. In particular, García-Posada and Mora-Sanguinetti (2014) document the same phenomenon for the years 2006 and 2010. In 2019, the business bankruptcy rates of Spain and Portugal were 14.2 and 19.8, respectively, while the figures for the US (43), Germany (69.6), the UK (85.6) and France (130.6) were much higher.[19]

Another similarity between Spain and Portugal is the efficiency of court enforcement in civil cases, the ones that involve most of the private conflicts between individuals or firms.[20] One of the most commonly used indicators of judicial efficiency is the Clearance Rate (CR), defined as the ratio of the number of outgoing cases (i.e., resolved cases) to the number of incoming cases within a period, in percentage terms. A CR above 100% means that the number of pending cases decreases, while a CR below 100% indicates that a court is resolving fewer cases than are filed with the court, leading to a growing inventory of pending cases. This indicator presents very similar values in Spain and Portugal. In 2012 the CR was 100% in Spain and 98% in Portugal, while in 2016 the CR was 103% and 112%, respectively.[21]

4. Identification strategy

Our main econometric methodology is the Difference-in-difference-in-differences (DDD) estimator (Gruber, 1994). The empirical setting is the following:

(i) Two countries: Spain and Portugal

Spain is the treated country, as the fresh start policy was introduced in that jurisdiction. This is denoted by the dummy variable es_c, which equals 1 for Spanish firms and 0 for

[19] Source: authors' computations from Eurostat, OECD and national sources.

[20] In Spain, there are four types of jurisdictions and, in turn, four types of courts that are relevant to the functioning of a company: civil, social, administrative and criminal. (i) Civil: conflicts may arise with other private firms or other private parties such as suppliers and customers (e.g. a non-payment of a service, disputes concerning the interpretation of a contract for the sale of goods, etc.). Those conflicts are dealt with by civil courts (*juzgados de lo civil*). (ii) Social: a company may have conflicts with its employees (e.g. a dismissed worker may sue the company). Those conflicts are regulated by labor legislation and are managed by employment tribunals (*juzgados de lo social*). (iii) Administrative: a company may also have conflicts with public administrations (e.g. a firm may be discriminated against in a public procurement procedure). Those conflicts are subject to administrative law and are resolved through appeals to administrative courts (*juzgados de lo contencioso-administrativo*). (iv) Criminal: there may be criminal cases, which are dealt with by penal courts (*juzgados de lo penal*).

[21] Source: European Commission for the Efficiency of Justice (CEPEJ). The indicator is constructed with data on courts of first instance. The study is conducted every two years since 2010, but there are no available data for Portugal in 2014.

Portuguese firms. Portugal is selected as the control country because of the clear institutional and cultural similarities with Spain (as explained in Section 3.3) and because there were no reforms of the personal bankruptcy law in Portugal between 2013 and 2016.

(ii) Two types of firms: micro and non-micro firms

Micro-firms are the treatment group, while non-micro firms are the control group. As our dataset does not include sole proprietorships, we use the term "micro-firm" to denote small corporate firms. Debt discharge included in personal bankruptcy laws can actually reach not only sole proprietors but also owners and partners in small companies.[22] The latter frequently *de facto* lack the limited liability protection granted by the company's legal form, as lenders often require personal guarantees or a security in the form of a mortgage over the owner's home (e.g. Berkowitz and White, 2004; Mayordomo et al., 2021).[23] In other words, in micro-firms the distinction between the firm's assets and the personal wealth of the firm's owners may often collapse, since the asset/liability perimeter is blurred and the financial difficulties of the firm easily affect the personal assets of the entrepreneurs. Therefore, if the business defaults on its debt, the financial creditors (very often banks) would seize the personal guarantees or the mortgage collateral provided by the firm's owners. Given this, the owners may find attractive the debt discharge associated with personal bankruptcy.

By contrast, non-micro firms (SMEs and large firms) have a much more dispersed ownership structure, which makes the use of personal guarantees to obtain credit more limited. Thus, they are the control group. The two groups are denoted by the dummy variable $micro_i$, which equals 1 if the company was a micro-firm *before* the introduction of the fresh start policy in 2015 and 0 otherwise. As it is measured before the policy shock, $micro_i$ is a predetermined variable not subject to endogeneity concerns.

(iii) Two periods: before and after the introduction of the fresh start policy

[22] In Spain, the vast majority of small businesses (defined as those with less than 10 employees) were either sole proprietorships (51.1%) or limited liability companies (44.7%) during the period 2013-2016. The paid-in minimum capital requirement of a limited liability company (*sociedad de responsibilidad limitada*) is only € 3,000. Source: National Statistics Institute (INE).

[23] According to the Banco de España's Credit Register (which contains information on all bank-firm relationships in Spain, as there is no reporting threshold) and the Central Balance Sheet Data Office (CBSDO, which is a sample that contains an average of 767,860 non-financial corporations per year), 68.6% of the Spanish micro-firms with outstanding loans between April 2016 and January 2020 had provided personal guarantees to their banks. As the CBSDO is not a random sample, this figure has been obtained by applying a raising factor, so that it is an unbiased estimate of the percentage of micro-firms with personal guarantees in the population of Spanish non-financial corporations.

The periods before and after the reform are 2013-2014 and 2015-2016, respectively. They are denoted by the dummy variable $post_t$, which equals 0 for the former and 1 for the latter.

As an illustration, suppose we want to study the potential impact of the introduction of the fresh start policy in 2015 on the probability of filing for bankruptcy by Spanish micro-firms. In this analysis, the dependent variable is *bankruptcy filing* (*bankruptcy*, for short), a dummy that equals 1 in the year in which the firm filed for bankruptcy and 0 otherwise. In this setting, the DDD regression is shown in equation (1).

$$bankruptcy_{ict} = \beta_0 + \beta_1 es_c + \beta_2 micro_i + \beta_3 es_c \cdot micro_i + \delta_0 post_t +$$

$$+\delta_1 post_t \cdot es_c + \delta_2 post_t \cdot micro_i + \boldsymbol{\delta_3} post_t \cdot es_c \cdot micro_i + u_{ict} \quad (1)$$

where *i* denotes a firm; *c* indicates a country; *t* corresponds to a year between 2013 and 2016 and u_{ict} is the regression disturbance.

The parameter of interest, the one that measures the causal effect of the policy, is δ_3. Its estimate $\widehat{\delta_3}$ can be expressed by the following formula:

$$\widehat{\delta_3} = \left[\left(\overline{y_{es,m,2}} - \overline{y_{es,m,1}}\right) - \left(\overline{y_{es,n,2}} - \overline{y_{es,n,1}}\right)\right] - \left[\left(\overline{y_{pt,m,2}} - \overline{y_{pt,m,1}}\right) - \left(\overline{y_{pt,n,2}} - \overline{y_{pt,n,1}}\right)\right]$$

where $y_{ict} \equiv bankruptcy_{ict}$; 1 is the period 2013-2014, 2 is the period 2015-2016; *es*=Spain, *pt*=Portugal; *m*=micro-firm, *n*=non-micro firm. The bars above the variables indicate arithmetic means.

The interpretation of $\widehat{\delta_3}$ is the following.[24] The first term in brackets is the usual Difference-in-Differences (DD) estimate if we focus only on the treatment country (Spain) and use Spanish non-micro firms as the control group. However, the problem with the usual DD estimate is that the trend of the outcome variable (*bankruptcy filing*) in the treatment group (micro-firms) could be systematically different from the trend in the control group (non-micro firms) in the absence of the policy, i.e., a violation of the parallel trends assumption, which is the identifying assumption of the DD estimator.[25] The second

[24] Wooldridge (2010, pages 150-151).

[25] The parallel trends assumption requires that, in the absence of treatment, the difference between the treatment and the control group is constant over time. In other words, the untreated units provide the appropriate counterfactual of the trend that the treated units would have followed if they had not been treated – that is, that the two groups would have had parallel trends.

term in brackets is an estimate of the trend differentials in the control country (Portugal) for treated and control firms (micro and non-micro firms, respectively). If the trend differentials between micro and non-micro firms in the absence of the reform were similar in the two countries, $\widehat{\delta_3}$ would be a consistent estimate of the causal effect of the policy. This is the identifying assumption of the DDD estimator in our particular application.

To put it differently, Olden and Møen (2020) show that, even though the DDD estimator is computed as the difference between two DD estimators, it does not require two parallel trend assumptions. The reason is that the difference between two biased DD estimators will be unbiased as long as the bias is the same in both estimators because it will be differenced out when the DDD estimator is computed. Therefore, the DDD estimator only requires one parallel trend assumption for the estimated effect to have a causal interpretation.

Therefore, the DDD estimator is more robust to violations of the parallel trends assumption than the two DD estimators we could implement: (i) a DD estimator based only on Spain that uses non-micro firms as the control group; (ii) a DD estimator that only uses micro-firms from Spain and Portugal.[26] The reason is that the DDD estimator controls for two kinds of potentially confounding trends that would render the previous estimators inconsistent: (i) changes in the probability of filing for bankruptcy by micro-firms across countries that have nothing to do with the introduction of the fresh start policy (e.g. both Spanish and Portuguese micro-firms performing worse than larger firms during the previous economic crisis); (ii) changes in the probability of filing for bankruptcy by all Spanish firms, possibly due to other policies adopted in Spain (e.g. labor market or tax reforms) or changes in the Spanish economy that affect the financial condition of all Spanish companies.

For a better understanding of $\widehat{\delta_3}$ let us rearrange the previous formula:

$$\widehat{\delta_3} = \left[\left(\overline{y_{es,m,2}} - \overline{y_{es,n,2}}\right) - \left(\overline{y_{es,m,1}} - \overline{y_{es,n,1}}\right)\right] - \left[\left(\overline{y_{pt,m,2}} - \overline{y_{pt,n,2}}\right) - \left(\overline{y_{pt,m,1}} - \overline{y_{pt,n,1}}\right)\right]$$

The estimate $\widehat{\delta_3}$ captures the change in the *relative outcome* of the treatment group (micro-firms) and the control group (non-micro firms) in the treatment country (Spain)

[26] The following ideas are closely related to Imbens and Wooldridge (2007). Angrist and Pischke (2009) also argue that a triple-differences model (DDD) is likely to generate a more convincing set of results than a traditional DD analysis.

compared to the change in the *relative outcome* of the treatment group (micro-firms) and the control group (non-micro firms) in the control country (Portugal).[27]

In addition, we perform several changes in equation (1) to improve the identification of the causal effect of the introduction of the fresh start policy. First, we add firm fixed effects α_i. Firm fixed effects absorb all time-invariant (observed and unobserved) heterogeneity (e.g. industry, legal form, business model, managerial skills) that may affect the probability of filing for bankruptcy. Due to perfect multicollinearity we must drop the time-invariant variables es_c and $micro_i$ and the interaction term $es_c \cdot micro_i$ in equation (1). Second, we include time-varying group effects θ_{mt}, i.e., a full set of dummies computed by interacting the variable $micro_i$ with each time period, as in Yelowitz (1995). These set of dummies control for the potential effects of business and employment regulations specific to micro-firms (e.g. special provisions of the labor law or the tax code, simplified accounting requirements, etc.), as well as their changes between 2013 and 2016. Because of perfect multicollinearity we must drop the interaction term $post_t \cdot micro_i$ in equation (1). Third, we add country-time fixed effects d_{ct} to control for the business cycles of Spain and Portugal. This is essential because the number of bankruptcy filings is highly countercyclical. Country-time fixed effects also control for country-specific policy changes that may affect the probability of filing for bankruptcy by all firms in Spain or Portugal. Due to perfect multicollinearity we must drop $post_t$ and $post_t \cdot es_c$ in equation (1). Fourth, we include lagged control variables x_{it-1} to account for a wide array of time-varying firm characteristics that may affect the probability of financial distress and the probability of filing for bankruptcy (e.g. size, age, profitability, leverage, liquidity, etc.). Those firm controls are lagged one year to mitigate endogeneity concerns due to simultaneity. Fifth, we substitute country-industry-time fixed effects d_{cit} for country-time fixed effects d_{ct} to account for differences in the business cycle across industries within each country. Finally, we replace country-industry-time fixed effects d_{cit} by region-industry-time fixed effects d_{rit} to control for differences in the business cycle across regions and industries.

Therefore, the most complete specification is represented in equation (2):

$$bankruptcy_{ict} = \alpha_i + \theta_{mt} + d_{rit} + \beta' x_{it-1} + \boldsymbol{\delta_1} post_t \cdot micro_i \cdot es_c + \varepsilon_{ict} \qquad (2)$$

[27] Using the potential outcomes framework, Olden and Møen (2020) show that it estimates the average treatment effect on the treated (ATET).

where *i* denotes a firm; *m* indicates a micro-firm; *c* indicates a country; *r* denotes a region; *t* corresponds to a year between 2013 and 2016 and ε_{ict} is the regression disturbance. By running equation (2), we can obtain a consistent estimate $\widehat{\delta_1}$ of the parameter of interest, the one that measures the causal effect of the introduction of the fresh start policy.[28]

Regarding statistical inference, the standard errors are clustered at the firm level to allow for potential heteroskedasticity and serial correlation within groups in the error structure. Nevertheless, following the studies of Moulton (1986) and Bertrand et al. (2004), it could be advisable to cluster at a higher level of aggregation. Therefore, as a robustness check, we use two-way cluster-robust standard errors (Cameron et al., 2011) at the region and the industry level to allow for serial correlation within those groups. Results (available upon request) are very similar.

Finally, we do not use placebo tests to verify the key identifying assumption of the DDD estimator, as recent research highlights the limitations of parallel trend pre-tests and placebo tests in standard DD models and their application to DDD models has not been analyzed in detail. Kahn-Lane and Lang (2020) note: "Increasingly, researchers point to a statistically insignificant pre-trend test to argue that they therefore accept the null hypothesis of parallel trends. There is no doubt that testing for a common pre-trend plays an important role in validating the parallel trends assumption underlying DD. However, failing to reject that outcomes in years prior to treatment exhibit parallel trends should not be confused with establishing the validity of the parallel trends counterfactual. Moreover, clearly, not rejecting the null hypothesis is not equivalent to confirming it." Bilinski and Hatfield (2019) also recommend to move away from traditional parallel trend pre-tests because of problems in two directions: (i) if we fail to reject the parallel trends hypothesis, in many cases this is because the power of those tests is low; (ii) but if power is high, and we reject parallel trends, this finding does not say anything about the

[28] Note that equation (2) models a rare event, i.e., a binary dependent variable with dozens to thousands of times fewer ones ("events") than zeroes ("non-events"), as most firms never file for bankruptcy. In this context, we prefer to estimate (2) by OLS (i.e., a linear probability model with fixed effects, LPMFE) rather than a conditional logit because Timoneda (2021) shows that the LPMFE generally outperforms logistic regression in rare events data. The reason is that, with rare events data and fixed effects, a substantial portion of the sample may be lost in Maximum Likelihood models such as the conditional logit or a logistic regression with group intercepts, because the groups (i.e., firms) without variation in the dependent variable do not enter the likelihood function and are consequently dropped. By contrast, the LPMFE does incorporate all groups into the estimation, as variation in the dependent variable is not a requirement of OLS, which mitigates the issues with reduced sample size in the logistic model.

magnitude of the violation and whether it matters much for the results, as with large enough samples trivial differences in pre-trends will lead to rejection of parallel trends.

5. Data sources, sample selection and variables

5.1 Data sources and sample selection

We make use of a large confidential dataset (iBACH)[29] that contains balance-sheet data and other non-financial information (e.g. country of residence, region at the NUTS-3 level, legal form, sector of activity, year of incorporation) of millions of non-financial corporations (i.e., sole proprietorships are not included) of several countries of the euro area. In particular, we use data on Spanish and Portuguese companies between the years 2012 and 2016 because the control variables are lagged one year, as explained in Section 4. We merge this dataset with confidential firm-level data on bankruptcy proceedings from Banco de España and Banco de Portugal.

We apply several filters to clean the data. We exclude firms whose goal is not profit maximization: state-owned companies, local corporations, non-profit organizations, membership organizations, associations and foundations and religious congregations. We also remove holding companies because their financial ratios may not be comparable with those of the rest of firms. We also drop foreign companies because they may not be affected by the national bankruptcy law and permanent establishments of entities that do not reside in the country because they may engage in forum shopping. Financial firms and companies that do not belong to the market economy are also excluded according to the NACE industry classification.[30] We remove non-annual accounts and accounts that are affected by mergers and acquisitions in the year that took place to increase the comparability of financial statements. We also apply three filters provided by iBACH for Spanish firms: (i) balance sheets with non-reliable monetary units; (ii) balance sheets with errors regarding positive/negative values; (iii) non-consistent employment. We delete observations with (i) or (ii) and impute the number of employees in (iii).[31] Finally, we

[29] iBACH stands for Micro Bank for the Accounts of Companies Harmonized. It is only available to researchers of the National Central Banks that participate in the project.

[30] Financial service activities, except insurance and pension funding (64). Insurance, reinsurance and pension funding, except compulsory social security (65). Activities auxiliary to financial services and insurance activities (66). Public administration and defence; compulsory social security (84). Activities of households as employers of domestic personnel (97). Undifferentiated goods- and services-producing activities of private households for own use (98). Activities of extraterritorial organisations and bodies (99). Activities of membership organisations (94).

[31] We use a Poisson regression in which the predictor variables are the log of total assets, the log of tangible fixed assets, the log of the firm's age, industry at a 2-digit level, region, legal form, accounting regime (ordinary, abridged or micro) and year dummies.

remove observations that violate basic accounting rules. The final sample has 6,266,140 observations, which correspond to 1,253,083 Spanish firms and 473,586 Portuguese firms for the period 2012-2016.

5.2 Dependent and independent variables

The dependent variables vary according to the particular exercise that has been carried out. To analyze the effect of the introduction of the fresh start policy on the probability of filing for bankruptcy by Spanish micro-firms we use *bankruptcy filing*, which is a dummy that equals 1 in the year in which the firm filed for bankruptcy and 0 otherwise. To study the impact of the reform on the probability of market exit by Spanish micro-firms we use two variables. The first variable is *exit*, a dummy that equals 1 in the year in which the firm exited the market and 0 otherwise.[32] The second variable is *exit through bankruptcy*, a dummy that equals 1 if a firm that was undergoing a bankruptcy proceeding exited the market in a certain year and 0 otherwise (i.e., either it did not leave the market or was not subject to an insolvency procedure). Similarly, we use *entry*, which is a dummy variable that equals 1 in the year in which the firm entered the market and 0 otherwise.[33] For the analysis of the real effects of the policy, we use the log of physical capital, as measured by tangible fixed assets (i.e., land, buildings, plant and machinery); the log of total employment (plus 1, to avoid excluding firms with no employees); and the log of real turnover, constructed as the sales of goods and services adjusted by the deflators of the value added at the 2-digit industry level of Spain and Portugal. For the study of firms' innovation activities and their relationship with fresh start policies, we use *intangibles*, which is the ratio of intangible fixed assets to total assets, in percentage terms. Finally, for some empirical exercises we use *bankruptcy status*, which is a dummy variable that equals 1 if the firm is undergoing a bankruptcy proceeding during a certain year and 0 otherwise.

Regarding the explanatory variables, the key regressor is *micro*, a dummy that equals 1 if the firm was a micro-firm *before* the introduction of the fresh start policy in 2015 and 0 otherwise. As we follow the European Commission definition, micro-firms must have

[32] Firms may exit the market because they are financially distressed and are liquidated after a formal bankruptcy procedure or an out-of-court debt workout. In addition, firms may also leave the market without being financially distressed, because of other reasons such as the retirement of their owners or because there are more profitable investment opportunities in an another business or industry.

[33] In particular, *entry* equals 1 if the firm age is zero, as *age* is the difference between the current year and its year of incorporation in the register or the database used to fill in the financial statements.

less than 10 employees and a turnover of less than € 2 million or total assets less than € 2 million. When there are several observations of the same firm before 2015, we compute arithmetic averages of those three variables to establish whether the firm satisfies the aforementioned criteria. As control variables we use *age*, the log of the firm age (plus 1, to avoid excluding newly created companies); *size* (log of total assets); *return on assets* (ROA); *total leverage*; *financial leverage*; the share of public credit (mainly tax and social security contributions) and staff debt (wages and related debt towards employees) to the company's total debt, in percentage terms; *negative equity*, a dummy variable that equals 1 if the firm has negative equity (i.e., its debts exceed the value of its assets) and 0 otherwise; *tangibility* (ratio of tangible fixed assets to total assets, in percentage terms); *liquidity ratio* (ratio of cash, deposits and other current financial assets to total assets, in percentage terms); *interest coverage ratio* (ratio of a company's earnings before interest, taxes, depreciation and amortization –EBITDA- to its interest expense); and *current ratio* (ratio of current assets to current liabilities). To avoid the effect of outliers, we windsorize at the 1st and 99th percentile all the continuous variables. Finally, we use two categorical variables: *industry* is the firm's sector of economic activity measured at a 4-digit level according to the NACE rev. 4 classification and *region* is the firm's location at the NUTS-3 level (e.g. provinces in Spain).

For some analyses, we also use the Altman's Z-score (Altman, 1968), an indicator that has been widely used in the literature to predict financial distress and bankruptcy. The Altman's Z-score is a linear combination of four or five common financial ratios, weighted by their coefficients. The Z-score has several versions depending on the type of firms. The one used in this paper is for non-listed firms that do not necessarily belong to the manufacturing sector. The exact formula is: $Z = 6.56X1+3.26X2+6.72X3+1.05X4$, where X1=(Current Assets−Current Liabilities)/Total Assets; X2=Retained Earnings/Total Assets; X3=Earnings Before Interest and Taxes/Total Assets; X4=Book Value of Equity/Total Liabilities. Low values of the Z-score are associated with a high probability of financial distress. Detailed definitions of all these variables can be found in Table X1.

5.3 Descriptive statistics: Spanish and Portuguese firms

Although the DD and the DDD estimators acknowledge that, in the absence of random assignment, treatment and control groups may differ for many (unobservable) reasons (e.g. Angrist and Pischke, 2009), Kahn-Lane and Lang (2019) argue that those estimators

will generally be more plausible if the treatment and control groups are similar in *levels* to begin with, not just in *trends*. Therefore, the aim of this section is to verify that firms in the treated country (Spain) and in the control country (Portugal) are fairly similar.

Table X2 presents descriptive statistics of firms undergoing bankruptcy proceedings (henceforth, "bankrupt firms") in Spain and Portugal in the period 2013-2014 (i.e., before the reform) and in the period 2015-2016 (i.e., after the reform). The table displays the mean and the standard deviation of each firm characteristic, as well as the number of observations and the number of companies, of four groups: Spanish and Portuguese micro-firms (Panel A) and Spanish and Portuguese non-micro firms (Panel B). We break down the analysis by firm size because micro-firms and non-micro firms are expected to differ in several dimensions in both countries. We will focus on the period 2013-2014, as we want to know whether there were major pre-existing differences between Spanish and Portuguese firms that could confound our empirical results.

We first compare Spanish and Portuguese micro-firms undergoing bankruptcy proceedings (Panel A). Before the reform, Spanish bankrupt firms were, on average, larger than their Portuguese counterparts, especially in terms of their total assets. In particular, the total assets of the average Spanish (Portuguese) micro-firm were € 2.18 million (€ 711,620), it had 1.6 (2.3) employees and its real turnover was about € 403,890 (€ 333,160). Spanish and Portuguese micro-firms were, on average, roughly the same age (15.9 and 15.3 years old, respectively). Both groups of firms exhibited very deteriorated financial conditions. In particular, Spanish micro-firms performed slightly worse than their Portuguese counterparts in terms of average ROA (-29.8% vs. -27%) and average interest coverage ratio (-12.8 vs. -11.6) and they also had, on average, higher financial leverage (48.1% vs. 33.6%). They were also a bit more indebted, as their total leverage was, on average, 182.1%, compared to 175.6% in the case of Portuguese micro-firms. As a result, the proportion of companies with negative equity was slightly higher (70% vs. 64%). However, Spanish micro-firms had, on average, a higher liquidity ratio (12.7% vs. 10.7%) and a higher current ratio (5.1 vs. 1.5). Accordingly, the average Z-score, which can be regarded as a summary measure of financial distress, was very similar in the two groups (-129.6 vs. -125.4). These small differences did not change substantially after the introduction of the fresh start policy in 2015.

We then compare Spanish and Portuguese non-micro firms undergoing bankruptcy proceedings (Panel B). Before the reform, Spanish bankrupt firms were, on average,

larger than their Portuguese counterparts, in terms of their total assets and turnover. In particular, the total assets of the average Spanish (Portuguese) non-micro firm were € 4.45 million (€ 3.1 million), it had 19.5 (23.3) employees and its real turnover was about € 2.35 million (€ 1.28 million). Spanish and Portuguese non-micro firms were, on average, about the same age (20.8 and 21.1 years old, respectively). Both groups of firms were in severe financial distress. In particular, the financial situation of Spanish non-micro firms was less deteriorated than their Portuguese counterparts in terms of average ROA (-30.4% vs. -37.2%) and average interest coverage ratio (-5.9 vs. -12.8), but they had a similar average financial leverage (39.1% vs. 40%). They were also less indebted, as their total leverage was, on average, 123.1%, compared to 132.4% in the case of their Portuguese counterparts, but the proportion of companies with negative equity was slightly higher (60% vs. 53%). In addition, Spanish non-micro firms had, on average, a higher liquidity ratio (10.8% vs. 6.6%) and a higher current ratio (2.5 vs. 1.2) than Portuguese non-micro firms. Consequently, their average Z-score was also higher (-113.4 vs. -215.3). Again, these patterns did not change considerably after the introduction of the fresh start policy in 2015.

Therefore, the descriptive evidence presented in Table X2 suggests that firms undergoing bankruptcy proceedings in the treated country (Spain) and in the control country (Portugal) are quite similar. The same analysis can be done by inspecting Table X3, which displays descriptive statistics of non-bankrupt firms in Spain and Portugal before and after the 2015 reform, and leads to the same conclusion. Nevertheless, in all the empirical analyses we will control for a wide array of financial and non-financial characteristics (e.g. profitability, leverage, liquidity, size, age, industry) to ensure that our results are not driven by small differences between those firms.

6. Empirical evidence

6.1 Bankruptcy filings by distressed micro-firms in Spain

We first analyze whether the introduction of the fresh start policy in 2015 increased the propensity to file for bankruptcy by the owners of Spanish micro-firms in financial distress. For that purpose, we run several DDD regressions by OLS to study the impact of the reform on the probability of filing for bankruptcy (i.e., a linear probability model) by Spanish micro-firms *relative* to Spanish non-micro firms and all (both micro and non-micro) Portuguese firms. The dependent variable is *bankruptcy filing*, a dummy that equals 1 in the year in which the firm filed for bankruptcy and 0 otherwise. There were

3,829 bankruptcy filings in Spain and 6,493 bankruptcy filings in Portugal between 2013 and 2016.[34]

We restrict our sample to financially distressed firms to model the conditional probability of filing for bankruptcy given financial distress. Otherwise, if we modeled the probability of filing for bankruptcy of all firms in the sample, we would estimate the impact of the introduction of the fresh start policy on the product between two probabilities, the conditional probability of filing for bankruptcy given financial distress and the probability of financial distress:

$$P(bankruptcy_{ict}) = P(bankruptcy_{ict}/fin\ distress_{ict}) \times P(fin\ distress_{ict}) \qquad (3)$$

We prefer to estimate the impact of the reform on the conditional probability of filing for bankruptcy by Spanish micro-firms given financial distress because we want to ascertain whether the reform made more appealing to file for bankruptcy by those firms in order to obtain a debt discharge for their owners, rather than reaching an out-of-court restructuring agreement with their creditors. Therefore, we are assuming away any potential effect of the introduction of the fresh start policy on the probability of financial distress.

We assume that all firms under bankruptcy proceedings are financially distressed. In the case of non-bankrupt firms, we use three different indicators of financial distress: (i) interest coverage ratio (ICR) less than 1 during two consecutive years and firm's age greater than or equal to 5 years; (ii) negative equity during two consecutive years; (iii) a value of the Altman's Z-score lower than 1.1 during two consecutive years. The ICR is the ratio of a company's earnings before interest, taxes and depreciation and amortization (EBITDA) to its interest expense. If the ICR is less than 1, it means that a company cannot cover its current interest payments with its operating income, a phenomenon that is called "cash-flow insolvency". We also impose another condition: the firm must be at least 5 years old. This additional requirement ensures that we are not misclassifying startups with good business opportunities, which usually incur losses in their first years of activity, as distressed. A firm with negative equity implies that its debts exceed the value of its assets,

[34] Note that, as shown in Table X2, there are 10,582 observations of bankrupt firms in Spain and 11,010 observations of bankrupt firms in Portugal, i.e., observations for which the variable *bankruptcy status* equals 1. The variable *bankruptcy status* is a dummy that equals 1 if the firm is undergoing a bankruptcy proceeding in a certain year, while the variable *bankruptcy filing* is a dummy that equals 1 only in the year in which the firm filed for bankruptcy.

which is called "balance-sheet insolvency". A value of the Altman's Z-score lower than 1.1 indicates that the firm is in the "distress zone", i.e., it has a very high probability of default. In all these definitions we also impose another condition: the firm must have positive debt, as a company with no debt cannot default, regardless of its performance.

For robustness we carry out the same analyses with less strict criteria. In particular, financially distressed firms are: (i) firms with ICR<1 and at least 5 years old; (ii) firms with negative equity; (iii) firms with an Altman's Z-score lower than 1.1. These analyses, which yield very similar results but make use of much more observations, are presented in Tables A1-A3 of the Online Appendix.

Before running DDD regressions, we assess whether traditional DD estimators could be valid in our empirical setup. As explained in Section 4, we could implement: (i) a DD estimator based only on Spain that uses non-micro firms as the control group; (ii) a DD estimator that only uses micro-firms from Spain and Portugal. In particular, Figure 3 depicts the evolution of *bankruptcy filing* in a subsample of distressed firms between 2012 and 2017, where we classify as financially distressed all firms under bankruptcy proceedings and non-bankrupt firms with an Altman's Z-score lower than 1.1 during two consecutive years.[35] Panel A presents such evolution for Spanish companies, distinguishing between micro and non-micro firms, while Panel B does the same for micro-firms, differentiating between Spanish and Portuguese companies. Panel A shows a pre-existing difference in the trends between micro and non-micro firms in Spain before 2015, which suggests a violation of the parallel trends assumption. This implies that a DD estimator only based on Spanish firms would provide an inconsistent estimate of the policy effect. Similarly, Panel B reveals a pre-existing difference in the trends between Spanish and Portuguese micro-firms, which indicates a violation of the parallel trends assumption. Hence, a DD estimator only based on micro-firms would yield an inconsistent estimate of the casual effect of the reform.

We then move to the DDD estimator. As explained in Section 4, its identifying assumption is that the trend differentials between micro and non-micro firms in the absence of the reform would be similar in the two countries. We can informally check this assumption by drawing the evolution of *bankruptcy filing* in a subsample of distressed

[35] A similar conclusion is reached when we use the other proxies of financial distress. Results are available upon request.

firms between 2012 and 2017, where we classify as financially distressed all firms under bankruptcy proceedings and non-bankrupt firms with an Altman's Z-score lower than 1.1 during two consecutive years (Figure 4).[36] Panels A and B present the evolution of the percentage of bankruptcy filings by firm size in Spain and Portugal, respectively. Panel C displays the evolution of the difference between the percentage of bankruptcy filings by micro-firms and the percentage of bankruptcy filings by non-micro firms in each country (i.e., the trend differentials). According to Panel C, the differences between micro and non-micro firms in Spain and Portugal exhibit fairly parallel trends in the period 2012-2014. Therefore, the DDD estimator should yield a consistent estimate of the causal impact of the reform.

The results are presented in Table X4 (ICR<1 during two consecutive years and at least 5 years old), Table X5 (negative equity during two consecutive years) and Table X6 (Z-score less than 1.1 during two consecutive years). In the three tables, the coefficient that estimates the impact of the reform is that of the triple interaction ES*MICRO*POST. Column (1) shows a DDD regression with firm fixed effects, time-varying group effects and country-time fixed effects. Column (2) adds lagged time-varying controls that may affect the probability of filing for bankruptcy. Column (3) replaces country-time fixed effects by country-industry-time fixed effects, while column (4) is the most saturated specification and uses region-industry-time fixed effects, as described in equation (2) of Section 4.

The results are very similar in the three subsamples and robust to the inclusion of a very large set of fixed effects. In particular, the coefficient of ES*MICRO*POST is always positive and significant at the 1% level. According to the most saturated specification (column 4) that coefficient ranges between 0.020 (Table X5) and 0.037 (Table X4). This means that the reform raised the probability that a Spanish micro-firm filed for bankruptcy between 2 pp. and 3.7 pp. relative to the rest of distressed firms. This is a substantial increase given that the unconditional probability (i.e., the percentage of bankruptcy filings in those subsamples) ranges between 1% and 1.3%.

In order to verify that the previous findings are a direct consequence of the reform, we carry out a simple exercise. In particular, we run the previous regressions on subsamples

[36] A similar conclusion is reached when we use the other proxies of financial distress. Results are available upon request.

of firms with a high and a low ratio of dischargeable debt to total assets. The rationale is that the owners of micro-firms with a high amount of dischargeable debt relative to their total assets should benefit more from the fresh start policy because, as explained in Section 3.1, it involves a five-year repayment plan after the liquidation of the debtor's non-exempt assets. The repayment plan consists of settling non-dischargeable debts (mostly preferential and privileged credit and other public claims). Preferential credit comprises, amongst others, wages for the last month of business activity[37] and any new debts assumed by the firm in the pursuit of its activity after the insolvency declaration has been made, including workers' claims.[38] Privileged credit comprises, *inter alia*, other liabilities deriving from employment relationships not qualifying as preferential, as well as those of tort and public sector creditors. Therefore, we proxy a firm's stock of dischargeable debt by the difference between its total debt and the sum of its public credit (mainly taxes and social security contributions) and its staff debt (wages and related debt towards its employees).

The results are presented in Table X7. Each column corresponds to a different proxy of financial distress: ICR<1 during two consecutive years and at least 5 years old (column 1); negative equity during two consecutive years (column 2) and Z-score less than 1.1 during two consecutive years (column 3). For the sake of brevity, the table only displays the estimates obtained with the most saturated specification, which includes the vector of time-varying controls, time-varying group effects, firm fixed effects and region-industry-time fixed effects. Panel A and Panel B show the estimates on subsamples of firms with a high and a low ratio of dischargeable debt to total assets, respectively, where "high" means greater than or equal to the median of that variable in each country and "low" means lower than the corresponding median. In Panel A the coefficient of interest is positive and highly significant in the four subsamples of financially distressed firms. In particular, the reform increased the probability that a Spanish micro-firm filed for bankruptcy between 2.6 pp. and 4.8 pp. relative to the rest of distressed firms with a high ratio of dischargeable debt to total assets. By contrast, in Panel B the coefficient is only marginally significant in column (1) and small and insignificant in columns (2) to (4). Note that the strong effect in Panel A and the absence of effect in Panel B are not simply

[37] Up to no more than twice the amount of the national minimum wage.

[38] Including severance payments, and surcharges on benefits for breach of obligations in relation to health and safety at work, until the judge orders cessation of the professional or business activity, approves a restructuring agreement or declares the insolvency concluded.

driven by companies in the former exhibiting a high leverage ratio (i.e., a ratio of dischargeable debt to total assets) than in the latter, as in all regressions we control for this effect by including the variables *total leverage* and *financial leverage.*

Therefore, these findings seem to corroborate the idea that the introduction of the fresh start policy increased the propensity of owners of distressed micro-firms to file for bankruptcy to obtain a debt discharge. Thus, while out-of-court restructuring agreements are generally cheaper than formal bankruptcy proceedings, and less subject to the holdout problem in small businesses with few creditors than in large companies, our results suggest that the possibility of obtaining a debt discharge in personal bankruptcy encouraged the use of the latter.

We also conduct two additional robustness tests regarding a key identifying assumption: which firms may benefit from the fresh start policy. In the baseline analyses we assume that micro-firms are the treated group and non-micro firms are the control group. However, any dichotomous classification is, to some extent, arbitrary. In particular, there is substantial heterogeneity within the group of micro-firms, in the sense that owners of firms with 0 employees may be more likely to benefit from a debt discharge in personal bankruptcy than those of firms with 9 employees. The reason is that a very small micro-firm (i.e., a company with no employees) is expected to have a relatively low amount of debt, so that it can be guaranteed by the personal wealth of its owner. By contrast, a larger micro-firm (e.g., a company with 9 employees) might have a stock of debt that is greater than the personal wealth of its owner (even though such a firm might have several co-owners or partners who can pledge personal guarantees to obtain the desired amount of credit).

In any case, as a robustness analysis, we now assume that the treated group only comprises firms with zero employees, while the rest of firms belong to the control group, as the former may be the most likely beneficiaries of the fresh start policy. This approach ensures a clean identification of the effect of the reform, although it is likely to estimate the lower bound of such an effect because owners of larger micro-firms may also use personal bankruptcy in case of financial distress. We use the same indicators of financial distress as in the baseline analyses. The coefficient of interest is the one of the triple interaction ES*ZERO*POST, where ZERO is a dummy variable that equals 1 if the firm had zero employees before the introduction of the fresh start policy. In tables A4 to A6 of the Online Appendix we can see that the coefficient of the triple interaction is positive

and significant, which means that the reform increased the probability of filing for bankruptcy by micro-firms with no employees relative to the rest of distressed firms. The coefficient is smaller than in the baseline analyses, which suggests that micro-firms with at least one employee also increased their use of personal bankruptcy because the lenders that grant credit to those companies usually require personal guarantees to their owners.

Second, as owners of some non-micro firms, especially SMEs, may pledge personal guarantees or collateral to obtain credit, we implement a DDD estimator with a continuous treatment effect, by making use of the lagged variable *size* (log of total assets):

$$bankruptcy_{ict} = \alpha_i + d_{rit} + \beta' x_{it-1} + \delta_1 post_t \cdot size_{t-1} + \delta_2 es_c \cdot size_{t-1} + \\ + \boldsymbol{\delta_3} post_t \cdot size_{t-1} \cdot es_c + \varepsilon_{ict} \quad (3)$$

where all variables and fixed effects have been explained in Section 4 and the coefficient the interest is δ_3. We conjecture that $\delta_3 < 0$ because owners of smaller firms are more likely to pledge personal guarantees and, consequently, more likely to file for bankruptcy to obtain a debt discharge in the event of financial distress.

The results are displayed in Tables A7 to A9 of the Online Appendix. As expected, the coefficient of the triple interaction ES*SIZE(t-1)*POST is negative and statistically significant, which means that the reform increased the probability of filing for bankruptcy *more* in the case of *smaller* distressed firms. According to the most saturated specification (column (4) of each table), after the reform, a 1% decrease in a firm's total assets raised the probability of filing for bankruptcy between 0.3% and 0.5%.

Finally, as previously explained, in our baseline analyses we are assuming away any potential effect of the introduction of the fresh start policy on the probability of financial distress. However, as the reform led to a (relatively) debtor-friendly personal bankruptcy law and thereby increased the bargaining power of the owners of distressed micro-firms, their creditors could be more willing to accept debt haircuts in out-of-court restructuring agreements, which may preempt financial distress.[39] Therefore, as a robustness test, we run the same regression models but using the full sample of firms (i.e., both solvent and distressed companies). The results of this exercise, displayed in Table A10 of the Online Appendix, show that the reform raised the probability that a Spanish micro-firm filed for

[39] This reasoning is similar to the results of Donaldson et al. (2020) in the case of "distressed exchanges" for large firms, as they find that policies that reduce the deadweight costs of bankruptcy and those that make bankruptcy more debtor-friendly facilitate out-of-court restructurings.

bankruptcy about 0.5 pp. relative to the rest of firms. This is a substantial increase given than the unconditional probability is 0.2%. This finding suggests that the positive impact of the reform on the conditional probability of filing for bankruptcy by Spanish micro-firms given financial distress exceeded its negative effect on the probability of distress of those firms (if any).

6.2 Exits of distressed micro-firms in Spain

In this second analysis we study whether the introduction of the fresh start policy in 2015 promoted the market exit of Spanish micro-firms in financial distress. With that aim, we run several DDD regressions by OLS to study the impact of the reform on the probability of exit of distressed Spanish micro-firms *relative* to Spanish non-micro firms and all Portuguese firms in the same financial condition. The dependent variable is *exit*, a dummy that equals 1 in the year in which the firm exited the market and 0 otherwise.

We restrict our sample to financially distressed firms because we want to capture "distressed exits", rather than firms that leave the market because of other reasons such as the retirement of their owners or because there are more profitable investment opportunities in an another business or industry. We assume that all firms under bankruptcy proceedings are financially distressed. In the case of non-bankrupt firms, we use the same indicators of distress as in the previous section: (i) interest coverage ratio (ICR) less than 1 during two consecutive years and at least 5 years old; (ii) negative equity during two consecutive years; (iii) a value of the Altman's Z-score lower than 1.1 during two consecutive years.

For robustness, we carry out the same analyses with less strict criteria: (i) firms with ICR<1 and at least 5 years old; (ii) firms with negative equity; (iii) firms with an Altman's Z-score lower than 1.1. These analyses, which yield very similar results but make use of much more observations, are displayed in tables A11-A13 of the Online Appendix.

We also informally check whether the trend differentials between micro and non-micro firms before 2015 are similar in the two countries. We do so by drawing the evolution of *exit* in a subsample of distressed firms between 2012 and 2017, where we classify as financially distressed all firms under bankruptcy proceedings and non-bankrupt firms with an Altman's Z-score lower than 1.1 during two consecutive years (Figure 5).[40] Panel

[40] A similar conclusion is reached when we use the other proxies of financial distress. Results are available upon request.

A and Panel B present the evolution of the percentage of market exits by firm size in Spain and Portugal, respectively, while Panel C displays the evolution of the difference between the percentage of market exits of micro-firms and the percentage of market exits of non-micro firms in each country (i.e., the trend differentials). In Panels A and B, micro and non-micro firms exhibit very similar trends in the period 2012-2014, i.e., there are no significant trend differentials between micro and non-micro firms before the reform in either country. Accordingly, Panel C shows that the differences between micro and non-micro firms in Spain and Portugal exhibit fairly parallel trends in the period 2012-2014. Hence, the DDD estimator should provide a consistent estimate of the causal impact of the introduction of the fresh start policy.

The results are displayed in Table X8 (ICR<1 during two consecutive years and at least 5 years old), Table X9 (negative equity during two consecutive years) and Table X10 (Z-score less than 1.1 during two consecutive years). In the three tables, the coefficient that estimates the impact of the reform on the market exit of Spanish micro-firms in financial distress is that of the triple interaction ES*MICRO*POST. Column (1) shows a DDD regression with firm fixed effects, time-varying group effects and country-time fixed effects. The latter may be an important control as they account for the business cycles of Spain and Portugal and exit rates are expected to be countercyclical. Column (2) also includes lagged time-varying controls that may affect the probability of a market exit by a distressed firm. Column (3) replaces country-time fixed effects by country-industry-time fixed effects, while column (4) is the most saturated specification and uses region-industry-time fixed effects, as described in equation (2).

In the three tables, the coefficient of ES*MICRO*POST is positive and highly significant in all specifications. According to the most saturated specification (column 4), the coefficient of interest ranges between 0.016 (Table X9) and 0.024 (Table X10). This means that the introduction of the fresh start policy increased the probability that Spanish distressed micro-firms exited the market between 1.6 pp. and 2.4 pp relative to the rest of distressed firms. This is a sizeable effect, given that the unconditional probability (i.e., the percentage of market exits in those subsamples) ranges between 24.2% and 24.5%.

Therefore, the econometric exercises of Section 5.1 and Section 5.2 provide *suggestive* evidence that the introduction of the fresh start policy increased the probability that Spanish micro-firms in financial distress exited the market via bankruptcy proceedings relative to the use of informal methods such as private workouts. However, this

interpretation of the results could be misleading if there was another shock in 2015, completely unrelated to the reform, which raised both bankruptcy filings and market exits by Spanish micro-firms relative to the rest of distressed firms. Hence, in order to obtain more direct evidence to support our hypothesis and rule out the existence of confounding shocks, we estimate the previous DDD models but using as a dependent variable *exit through bankruptcy,* a dummy that equals 1 if a firm that was undergoing bankruptcy exited the market in a certain year and 0 otherwise (i.e., either it did not leave the market or was not subject to an insolvency procedure). We use the same indicators of financial distress as before and assume that all firms under bankruptcy proceedings are distressed.

As in previous analyses, we first check whether the trend differentials between micro and non-micro firms before 2015 are similar in the two countries. We do so by drawing the evolution of *exit through bankruptcy* in a subsample of distressed firms between 2012 and 2017, where we classify as financially distressed all firms under bankruptcy proceedings and non-bankrupt firms with an Altman's Z-score lower than 1.1 during two consecutive years (Figure 6).[41] Panel A and Panel B present the evolution of the percentage of exits through bankruptcy by firm size in Spain and Portugal, respectively, while Panel C displays the evolution of the difference between the percentage of exits through bankruptcy by micro-firms and the percentage of exits through bankruptcy by non-micro firms in each country (i.e., the trend differentials). Panel A shows a pre-existing difference in the trends between micro and non-micro firms in Spain before 2015, which suggests a violation of the parallel trends assumption. This implies that a DD estimator only based on Spanish firms would be likely to provide an inconsistent estimate of the policy effect. By contrast, Panel C shows that the differences between micro and non-micro firms in Spain and Portugal exhibit fairly parallel trends in the period 2012-2014. Therefore, the DDD estimator should yield a consistent estimate of the causal impact of the reform.

The results are presented in Table X11 (ICR<1 during two consecutive years and at least 5 years old), Table X12 (negative equity during two consecutive years) and Table X13 (Z-score less than 1.1 during two consecutive years). In the three tables, the coefficient that estimates the impact of the reform on the market exit of Spanish micro-firms undergoing a bankruptcy proceeding is that of the triple interaction ES*MICRO*POST.

[41] A similar conclusion is reached when we use the other proxies of financial distress. Results are available upon request.

In those four tables, the coefficient of interest is positive and highly significant in all specifications. According to the most saturated specification (column 4), the coefficient of interest ranges between 0.021 (Table X12) and 0.024 (Table X11). This implies that the introduction of the fresh start policy increased the probability that Spanish micro-firms in bankruptcy exited the market between 2.1 pp. and 2.9 pp. relative to the rest of distressed firms. This is a fairly large effect, given that the unconditional probability (i.e., the percentage of market exits by firms in bankruptcy in those subsamples) ranges between 1.2% and 1.7%.

Thus, our findings reveal that the reform increased the probability that Spanish distressed micro-firms exited the market via a bankruptcy proceeding relative to the use of informal methods such as private workouts with their creditors. The reason is that the Spanish fresh start policy, by requiring the liquidation of the debtor's non-exempt assets, does not reorganize distressed micro-firms but rather leads those firms to exit the market. However, by reducing the amount of past debt that must be repaid with future earnings and assets, it should incentivize entrepreneurs to undertake new economic activities after the first bankruptcy, rather than being discouraged from entrepreneurship or work in the open labor market and to resort to the shadow economy to avoid repaying the creditors from the previous business venture.

6.3 The real effects of the fresh start policy

The real effects of the introduction of the fresh start policy on Spanish micro-firms are a priori ambiguous, as the reform provided partial insurance against business failure (the "insurance effect"), which could incentivize owners of micro-firms to invest more in capital and hire more employees, but could also increase the interest rates on bank loans to those businesses and restrict their access to credit (the "credit supply effect"). Therefore, the question needs to be answered empirically.

For that purpose, we run DDD regressions in which the dependent variable is the log of physical capital, the log of total employment or the log of real turnover. As we want to analyze the ex-ante decisions of Spanish micro-firms, we delete from the sample firms classified as inactive in the iBACH dataset[42], businesses whose turnover was zero between 2013 and 2016 and those that exited the market during that period. We also

[42] Non-active firms are those that meet the following two conditions: (i) Assets and Liabilities >0 and (ii) all the items of the profit & loss account=0.

remove companies undergoing bankruptcy proceedings because their investment and hiring decisions are constrained by the requirement to pay back creditors either through a restructuring agreement or by the piecemeal liquidation of the firm's assets.[43]

As in previous analyses, we first check whether the trend differentials between micro and non-micro firms before 2015 are similar in the two countries by drawing the evolution of the average log of capital (Figure 7), the average log of total employment (Figure 8) and the average log of real turnover (Figure 9) between 2012 and 2017. In each figure, Panel A and B compare the evolution of these variables by firm size in Spain and Portugal, respectively, while Panel C displays the trend differentials between micro and non-micro firms in each country. In the three figures, micro-firms and non-micro firms exhibit very different trends in the period 2012-2014 in both countries (panels A and B). However, in the three figures, the trend differentials between micro-firms and non-micro firms in Spain and Portugal are parallel in the period 2012-2014 (panels C). Therefore, the DDD estimator is more likely to provide a consistent estimate of the causal impact of the reform than a traditional DD estimator only based on Spanish firms.

The results are presented in Table X14 (investment in physical capital), Table X15 (employment decisions) and Table X16 (real turnover). In the three tables, the coefficient that estimates the impact of the reform is that of the triple interaction ES*MICRO*POST. Column (1) shows a DDD regression with firm fixed effects, time-varying group effects and country-time fixed effects. Column (2) adds lagged time-varying controls that may affect the investment and hiring decisions of the companies or the evolution of their sales. Column (3) replaces country-time fixed effects by country-industry-time fixed effects, while column (4) saturates the specification with region-industry-time fixed effects, as described in equation (2).

Regarding the impact of the reform on investment, the coefficient of interest is positive and statistically significant in all specifications, as shown in Table X14. The size of the effect is modest. According to the most saturated specification (4), the introduction of the fresh start policy led to an increase in the physical capital of Spanish micro-firms of 3.2%

[43] In Spain, the degree of autonomy of the insolvent company differs depending on which party files for bankruptcy. If the firm managers file for bankruptcy, the so-called voluntary filing (*concurso voluntario*), then they continue to manage its assets and its business activity, although its operations are supervised by the insolvency administrator. If the bankruptcy is filed by its creditors (*concurso necesario*), the firm managers are relieved of their duties and the company is managed by the administrator. Since the entry into force of the Bankruptcy Law in 2004, approximately 94% of insolvency proceedings have been voluntarily filed. Source: García-Posada (2020).

relative to the rest of firms, while the average capital growth during the sample period was 1.4%.

Concerning the effect of the introduction of the fresh start policy on the employment of Spanish micro-firms, displayed in Table X15, the coefficient of interest is very small and only marginally significant in specification (3) and not statistically different from zero in the most saturated specification (4). This result suggests that the reform had no effect on the employment of Spanish micro-firms.

We also examine the impact of the introduction of the fresh start policy on the real turnover of Spanish micro-firms, as presented in Table X16. The coefficient of interest is positive and statistically significant in all specifications. The size of the effect is modest again. According to the most saturated specification (4), the reform caused an increase in the real turnover of Spanish micro-firms of 2.3% relative to the rest of firms, while the average annual turnover growth during the sample period was 2.6%.

Finally, to verify that the previous findings, i.e., the increase in investment and turnover, are a direct consequence of the introduction of the fresh start policy, we carry out a simple exercise. In particular, we run the previous regressions in two subsamples, firms with a high and a low share of public credit (mainly taxes and social security contributions) and staff debt (wages and related debt towards employees) to their total debt. "High" share means one greater than or equal to the median value of the relevant variable in each country and "low" comprises those below the corresponding median. The reason is that, as explained in Section 3.1 and Section 6.1, those liabilities are non-dischargeable. Accordingly, we should expect the real effects of the reform to be larger in micro-firms with a low share of the major categories of non-dischargeable debt to their total debt than in those with a high share, as the "insurance effect" is stronger in the former.

This is precisely what we find. Table X17 (capital investment) shows that the coefficient of the triple interaction ES*MICRO*POST is not statistically different from zero across the four specifications in the subsample of firms with a high share of non-dischargeable debt (Panel A), while it is significant at the 1% level in all the specifications in the subsample of firms with a low share of non-dischargeable debt (Panel B). According to the most saturated specification (4), the introduction of the fresh start policy led to an increase in the physical capital of Spanish micro-firms of 2.8% relative to the rest of firms with a low share of those liabilities.

Similarly, Table X18 (real turnover) shows that the coefficient of interest is insignificant across the four specifications in the subsample of firms with a high share of non-dischargeable debt (Panel A). By contrast, it is significant at the 1% level in all the specifications in the subsample of firms with a low share of non-dischargeable debt (Panel B). According to the most saturated specification (4), the introduction of the fresh start policy increased the turnover of Spanish micro-firms by 3.6% relative to the rest of firms with a low share of those liabilities. Therefore, this simple analysis confirms a causal effect of the introduction of the fresh start policy on the investment decisions and sales performance of Spanish micro-firms.

In sum, all the above evidence suggests that the "insurance effect" dominated the "credit supply effect": small business owners became less fearful of failure as part of their debts could be discharged in case of insolvency, so they invested more in physical capital. Probably as a consequence, the turnover of those firms also grew moderately.

6.4 The effect of the fresh start policy on firm entry

While the previous section analyzed the effect of the introduction of the fresh start policy on the intensive margin, i.e., on the performance of incumbent firms, we now move to study the impact of the reform on the extensive margin, i.e., on firm entry. Again, the overall effect of the policy will depend on the relative strength of the "insurance effect", which may incentivize risk-averse agents to start new small businesses, and the "credit supply effect", which may restrict their access to credit. This second effect may be particularly acute in the case of startups, as found by Cerqueiro and Penas (2017), because they are more opaque to creditors due to their lack of a track record.

With that aim, we use the variable *entry*, which is a dummy that equals 1 in the year in which the firm entered the market and 0 otherwise. In other words, *entry* equals 1 if the firm age is zero, as *age* is the difference between the current year and its year of incorporation. In addition, we need to compute the variable *micro* in a different way, as we want to observe firm births *after* the introduction of the fresh start policy. Therefore, only in this section of the paper, *micro* is a dummy variable that equals 1 if the firm is a micro-firm in the first year in which it is observed in the sample and 0 otherwise.

As we want to study the entry decisions of Spanish micro-firms, we delete from the sample firms classified as inactive in the iBACH dataset, businesses whose turnover was

zero between 2013 and 2016, those that exited the market during any of those years and companies that were undergoing bankruptcy proceedings during that period.

Regarding the econometric methodology, we again use a DDD estimator with Spanish micro-firms as the treatment group and Spanish non-micro firms and all Portuguese firms as the control groups. We also informally check whether the trend differentials between micro and non-micro firms before 2015 are similar in the two countries. We do so by drawing the evolution of *entry* between 2012 and 2017 (Figure 10). Panel A and Panel B present the temporal evolution of the percentage of firm entries by firm size in Spain and Portugal, respectively, while Panel C displays the evolution of the difference between the percentage of entries by micro-firms and the percentage of entries by non-micro firms in each country (i.e., the trend differentials). In Panels A and B, micro and non-micro firms exhibit fairly similar trends in the period 2012-2014, i.e., there are no significant trend differentials between micro and non-micro firms before the reform in either country. Accordingly, Panel C shows that the differences between micro and non-micro firms in Spain and Portugal exhibit parallel trends in the period 2012-2014. Hence, the DDD estimator should provide a consistent estimate of the causal impact of the introduction of the fresh start policy.

The regression results are displayed in Table X19. As in previous analyses, the coefficient that estimates the impact of the reform is that of the triple interaction ES*MICRO*POST. Column (1) shows a DDD regression with firm fixed effects, time-varying group effects and country-time fixed effects. Country-time fixed effects control for the business cycles of Spain and Portugal (which is essential because entry rates are expected to be procyclical) as well as structural determinants of firm entry such as labor market and entry regulations (Klapper et al., 2006). Column (2) adds time-varying controls that may affect the probability of entry, although we exclude *age* because of obvious endogeneity problems. We must also use the contemporaneous values of the control variables, rather than the lagged values, because if a firm enters the market in the year *t* there are no available data on the firm in the previous year *t-1*. Column (3) replaces country-time fixed effects by country-industry-time fixed effects, while column (4) is the most saturated specification and uses region-industry-time fixed effects, as described in equation (2).

The coefficient of interest is positive, highly significant and remarkably similar across all specifications. In particular, according to (4), the 2015 reform increased the probability that a Spanish micro-firm entered the market by 1.8 pp. relative to the rest of firms. This

is a fairly large effect, given that the unconditional probability (i.e., the entry rate observed in the sample) is 3.1%. Therefore, we may conclude that the introduction of the fresh start policy promoted firm creation among Spanish micro-firms. This finding also suggests that a very pro-creditor personal bankruptcy law, like the Spanish one before 2015, may be an important barrier to entry for small businesses.

In addition, we analyze whether the introduction of the fresh start policy fostered the creation of high-productivity firms, such as those involved in R&D and the production of other intangible assets, or firms with more traditional business models and lower productivity. The existing literature, which has mainly focused on innovation and venture capital, provides mixed evidence. Both Armour (2004) and Armour and Cumming (2006), based on cross-country analyses, find that creditor-friendly bankruptcy codes, measured by the number of years before an insolvent individual would obtain a fresh start, deter the demand for venture capital and private equity, which are used to finance high-risk innovative startups with limited access to other sources of funding. By contrast, based on US data, Cerqueiro et al. (2016) find that debtor-friendly codes, measured by exemption limits, hamper innovation by small firms due to the lower availability of external finance in response to stronger debtor rights, as they reduce the number and average quality of patents (gauged by number of citations).

In our empirical application, we carry out two different analyses. First, we construct the variable *intangibles*, which is defined as the share of intangible fixed assets to total assets for each firm and for each year during the period 2013-2016. In our dataset, intangible fixed assets are brands, patents, copyrights, licenses, goodwill, etc. This share is zero for most of the observations in the sample (more than 75% of them). Second, we compute the 90th percentile of the distribution of this variable for each industry and country during the period 2013-2016, where industry is measured at a 4-digit level. Third, we define as firms with high intensity in intangible assets as those with a value of *intangibles* at or above the 90th percentile of that distribution and firms with low intensity as those with a value of *intangibles* below that percentile. Finally, we split the sample into 2 subsamples, firms with low and high intensity in intangible assets, respectively, and run the previous DDD regressions in each subsample.

The results are presented in Table X20. For the sake of brevity, it only displays the estimates obtained with the most saturated specification, which includes the previous vector of time-varying controls, time-varying group effects, firm fixed effects and region-

industry-time fixed effects. Columns (1) and (2) show the results with the subsample of firms with low and high intensity in intangible assets, respectively. According to column (1), the introduction of the fresh start policy increased the probability that a Spanish micro-firm entered the market by 1.8 pp. relative to the rest of firms with low intensity in intangible assets. This is a sizeable effect with a semielasticity of 0.5 from its unconditional mean[44] (3.4%). However, the impact is somewhat larger for firms with high intensity in intangible assets. According to column (2), the reform raised the probability that a Spanish micro-firm entered the market by 2 pp. relative to the rest of firms in that category. This is a greater effect with a semielasticity of 0.8 from its unconditional mean (2.7%). Therefore, these findings indicate that the introduction of the fresh start policy fostered firm creation among Spanish micro-firms, especially in those with a high share of intangible fixed assets, which are more involved in R&D and other innovation activities.

However, given that investing in intangible assets is a rare event in our sample, we undertake a second analysis, which is wider in scope. This approach relies on direct measures of total factor productivity (TFP) at the industry level from the EUKLEMS database (Stehrer et al., 2019). In particular, we split the sample into 3 subsamples according to the average TFP in the period 2013-2016: firms in low-productivity, medium-productivity and high-productivity sectors.[45]

The results are reported in Table X21. As in the previous table, it only displays the estimates obtained with the most saturated specification, which includes the vector of time-varying controls, time-varying group effects, firm fixed effects and region-industry-time fixed effects. Columns (1), (2) and (3) show the results for firms in low-productivity, medium-productivity and high-productivity sectors, respectively. Column (1) and column (2) present very similar estimates. In particular, the introduction of the fresh start policy increased the probability that a Spanish micro-firm entered the market by 1.6 pp. relative

[44] The unconditional mean equals the unconditional probability in the case of Bernoulli random variables such as *entry*. The unconditional probability is the percentage of observations in which *entry* equals 1.

[45] Low-productivity sectors: B.Mining and quarrying; Q.Health and social work; P.Education; R.Arts, entertainment and recreation; S.Other service activities; F.Construction. Medium-productivity sectors: D.Electricity, gas, steam and air conditioning supply; E.Water supply; sewerage; waste management and remediation activities; I.Accommodation and food service activities; H.Transportation and storage; M.Professional, scientific and technical activities; N.Administrative and support service activities. High-productivity sectors: G.Wholesale and retail trade; repair of motor vehicles and motorcycles; J.Information and communication; L.Real estate activities; C.Total manufacturing; A.Agriculture, forestry and fishing. NACE rev. 4 classification.

to the rest of firms in low-productivity sectors, which is a substantial effect with a semielasticity of 0.5 from its unconditional mean (3.1%). Similarly, the reform raised the probability that a Spanish micro-firm entered the market by 1.4 pp. relative to the rest of firms in medium-productivity sectors, which is a sizeable effect with a semielasticity of 0.4 from its unconditional mean (3.4%). In high-productivity sectors the impact is somewhat larger. According to column (3), the reform increased the probability that a Spanish micro-firm entered the market by 2.1 pp. relative to the rest of firms in those sectors, which is a greater effect with a semielasticity of 0.7 from its unconditional mean (2.9%). Therefore, these findings indicate that the introduction of the fresh start policy promoted firm creation among Spanish micro-firms in all sectors of activity, especially in those with higher productivity.

7. Conclusions

There is no consensus in the literature on whether creditor-friendly or debtor-friendly personal bankruptcy laws are better in promoting small business activity. The impact of personal insolvency laws on the performance of micro-firms depends on two opposite effects. On the one hand, pro-creditor bankruptcy laws deter debtors' moral hazard and maximize recovery rates in insolvency proceedings, which reduce the interest rates on loans to those businesses and facilitate their access to credit (the "credit supply effect"). On the other hand, pro-debtor bankruptcy laws provide partial insurance against business failure (the "insurance effect"), which may encourage risk-averse agents to undertake entrepreneurial activities.

Against this backdrop, in this paper we study a reform of the personal bankruptcy code that introduced a fresh start policy in Spain in 2015. Before that reform, the chances of individual debtors to obtain a debt discharge were extremely remote.

In order to estimate the causal effect of the introduction of the fresh start policy on the activity of Spanish micro-firms we make use of a large confidential dataset that contains balance-sheet data of thousands of hundreds of Spanish and Portuguese non-financial corporations between 2012 and 2016, coupled with exhaustive firm-level data on bankruptcy proceedings. Portugal is selected as the counterfactual country because of its clear institutional and cultural similarities with Spain. The main econometric technique is the Difference-in-difference-in-differences (DDD) estimator, which is more robust to

violations of the parallel trends assumption than the traditional Difference-in-Differences (DD) estimator.

Our main findings are the following. First, the introduction of the fresh start policy increased substantially the probability that a Spanish micro-firm filed for bankruptcy in the event of financial distress in order to obtain a debt discharge for the firm's owners and partners. Second, the reform raised the probability that Spanish micro-firms that were undergoing bankruptcy proceedings exited the market. The reason is that the Spanish fresh start policy, by requiring the liquidation of the debtor's non-exempt assets, does not reorganize micro-firms, but rather leads those businesses to exit the market.

We then analyze the real effects of the introduction of the fresh start policy, namely, the investment and employment decisions of Spanish micro-firms. We find that the reform led to a modest increase in capital investment, which suggests that small business owners became less fearful of failure as part of their debts could be discharged in case of insolvency. Consequently, the turnover of those firms also grew moderately. By contrast, we do not find that the introduction of the fresh start policy encouraged hiring more employees by those firms.

Finally, we also study the effect of the reform on firm entry. According to our results, the introduction of the fresh start policy fostered firm creation among Spanish micro-firms, especially in companies that were involved in innovation activities and in sectors with high productivity. This finding also suggests that a very pro-creditor personal bankruptcy law, like the Spanish one before 2015, may be an important barrier to entry for small businesses.

Our overall assessment is that the introduction of the fresh start policy induced positive effects over the small business sector in Spain and thus could be deemed as a step in the right direction. Still the actual use of debt discharge appears to be much more limited in Spain than in other comparable economies, especially in the case of the self-employed and micro-firms.

One possible explanation lies in the fact that public credit (essentially taxes and social security contributions) cannot be discharged in bankruptcy. As these claims usually make up a significant part of the debt of micro-firms and sole proprietorships, the repayment plan is likely to be highly demanding in view of the debt discharge that it brings about.

The exceptionality of public credit in terms of debt discharge is questionable from the viewpoint of economic efficiency: the Government is a diversified creditor since its claims are dispersed over the entire population of taxpayers, and is therefore better placed than other creditors to absorb the loss associated with discharge. It is also questionable from the viewpoint of distributive justice, since the only two types of debt that cannot be discharged are public credit and alimony claims. One may also bear in mind that other involuntary creditors (such as tort creditors) may be affected by the debt discharge.

Thus, the discharge of public claims would boost the use of the fresh start policy, while it should have a relatively limited impact on the Treasury, given the small balance sheets of micro-firms and sole proprietorships and, especially, the precarious financial condition of such businesses when they file for bankruptcy, which results in very low credit recovery rates.

Other factors may hinder the use of the fresh start by debtors. For once, the repayment plan is excessively long (five years), although the transposition of the EU Directive on preventive restructuring frameworks[46] should reduce the duration of the repayment plan to a maximum of three years. Additionally, the eligibility conditions are perhaps too many, and too indeterminate. Think of the one consisting in the verification that the debtor has not rejected an offer of suitable employment in accordance with her abilities in the four years prior to bankruptcy. This surely introduces uncertainty without clear benefits, given the difficulty in verifying the offer and its suitability, as well as the causes of the rejection.

[46] Directive (EU) 2019/1023 of the European Parliament and of the Council of 20 June 2019 on preventive restructuring frameworks, on discharge of debt and disqualifications, and on measures to increase the efficiency of procedures concerning restructuring, insolvency and discharge of debt, and amending Directive (EU) 2017/1132.

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Figure 1: Number of bankruptcy filings by consumers and self-employed in Spain

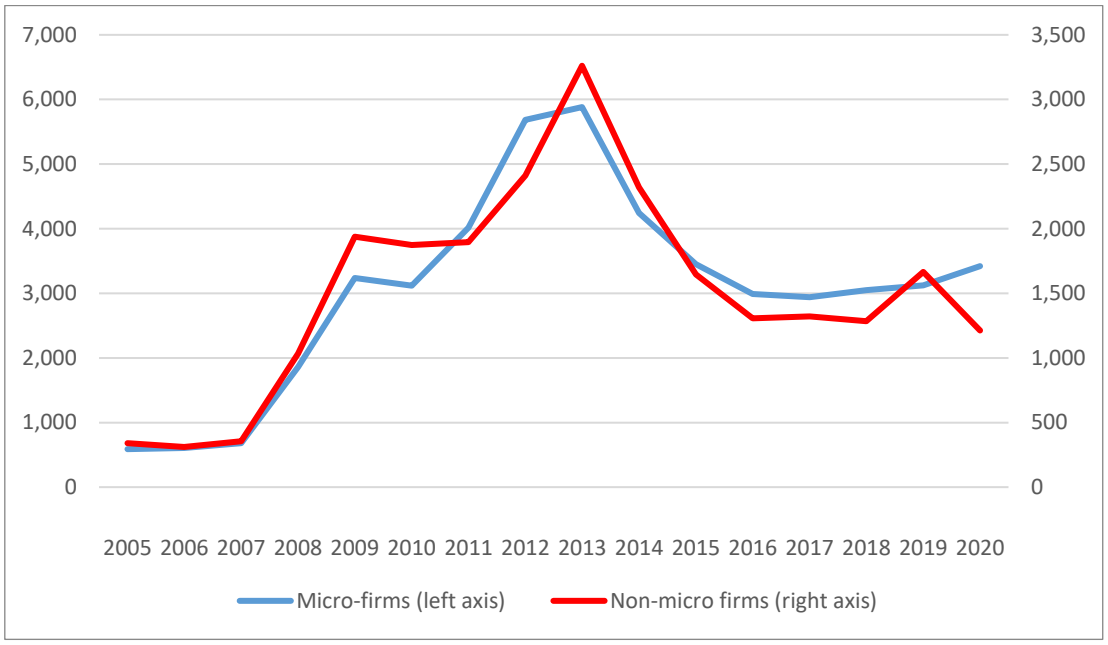
Source: Bankruptcy Proceedings Statistics (INE).

Figure 2: Number of bankruptcy filings by firm size in Spain

Panel A: firm size measured by employment

Source: Bankruptcy Proceedings Statistics (INE). Micro-firms have less than 10 employees.

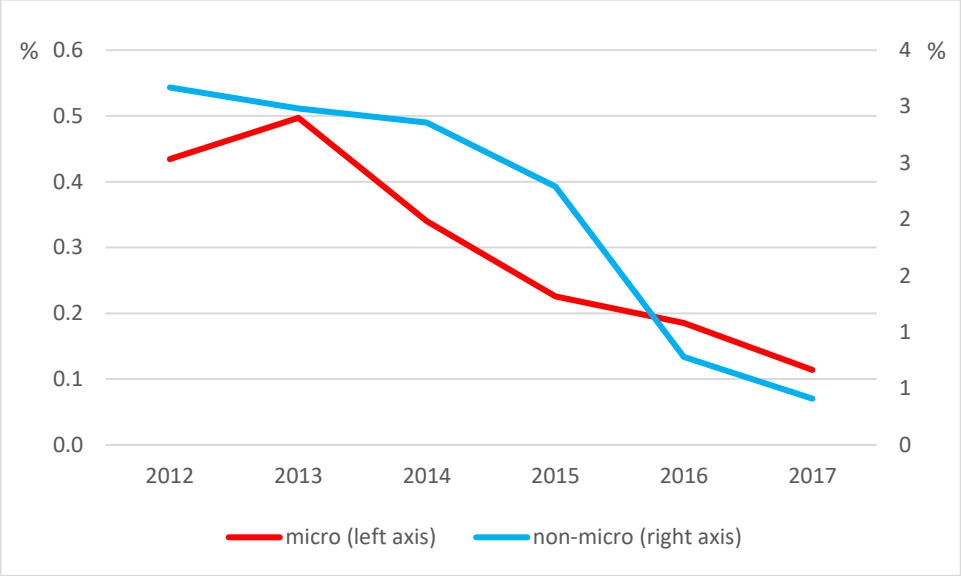
Panel B: firm size measured by turnover



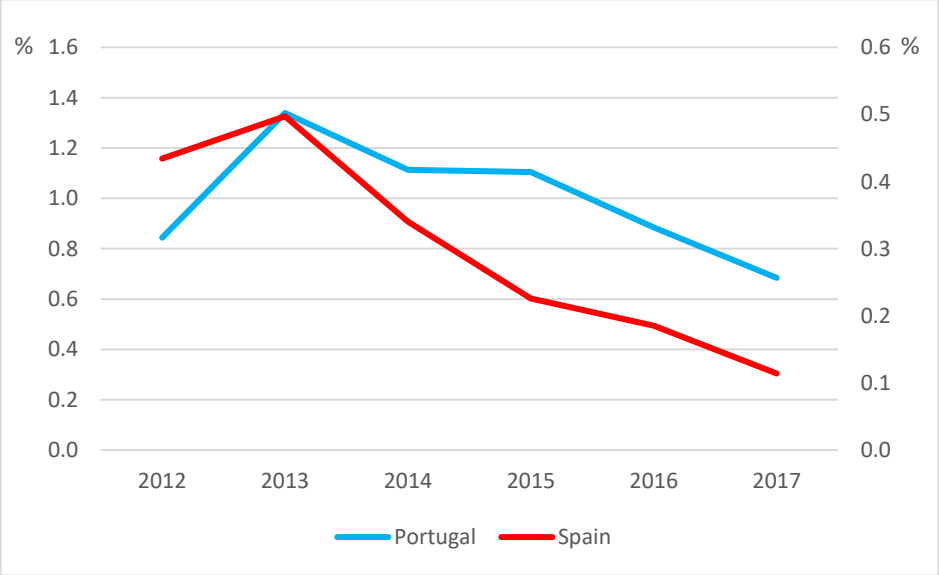
Source: Bankruptcy Proceedings Statistics (INE). Micro-firms have a turnover of less than € 2 million.

Figure 3: Percentage of bankruptcy filings in a subsample of distressed firms (assessing parallel trends for traditional DD estimators)

Panel A: Percentage of bankruptcy filings in Spain by firm size



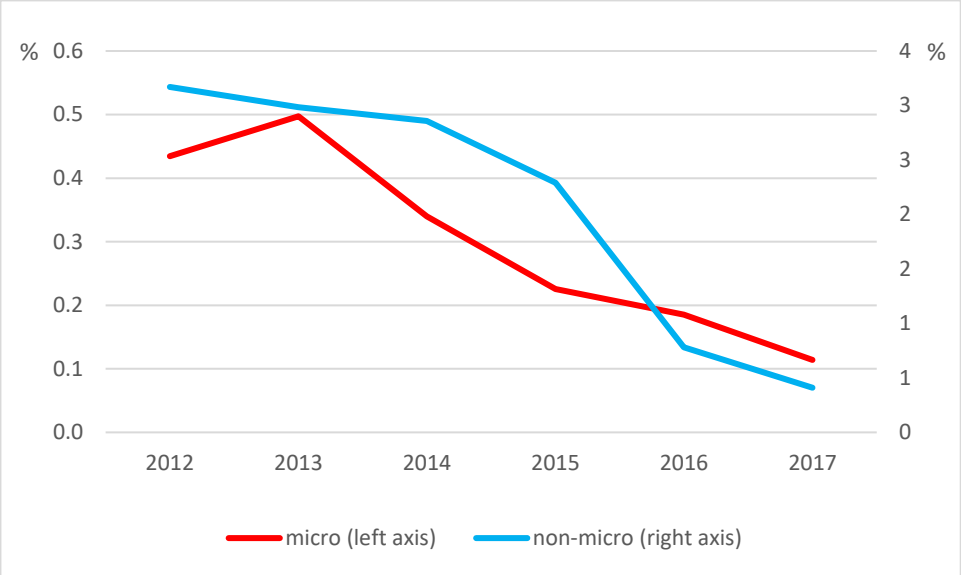
Panel B: Percentage of bankruptcy filings by micro-firms by country



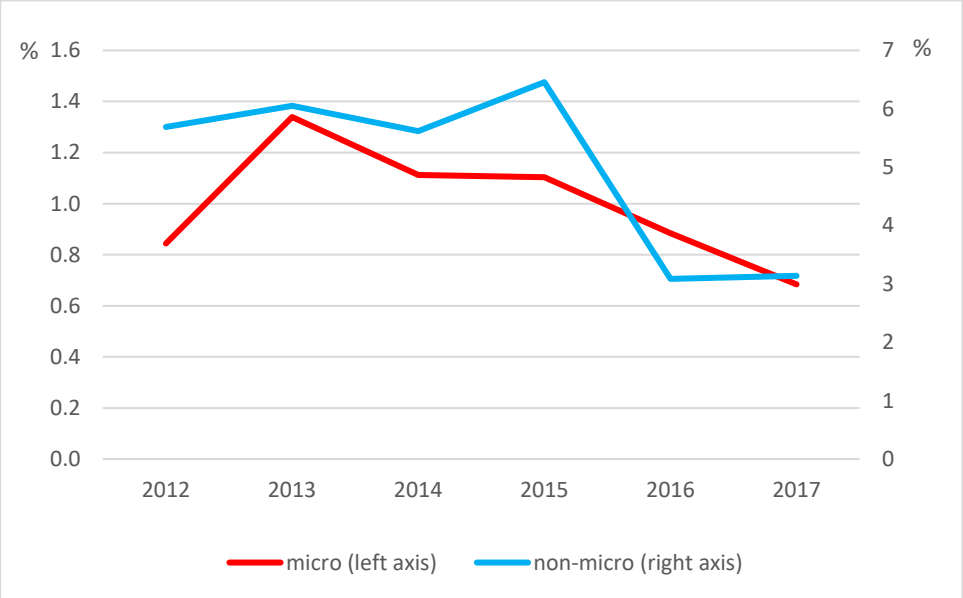
Source: Authors' computations. Micro-firms have less than 10 employees and a turnover of less than € 2 million or total assets less than € 2 million. Financially distressed firms are all firms under bankruptcy proceedings and non-bankrupt firms with an Altman's Z-Score lower than 1.1 during two consecutive years.

Figure 4: Percentage of bankruptcy filings in a subsample of distressed firms

Panel A: Percentage of bankruptcy filings in Spain by firm size

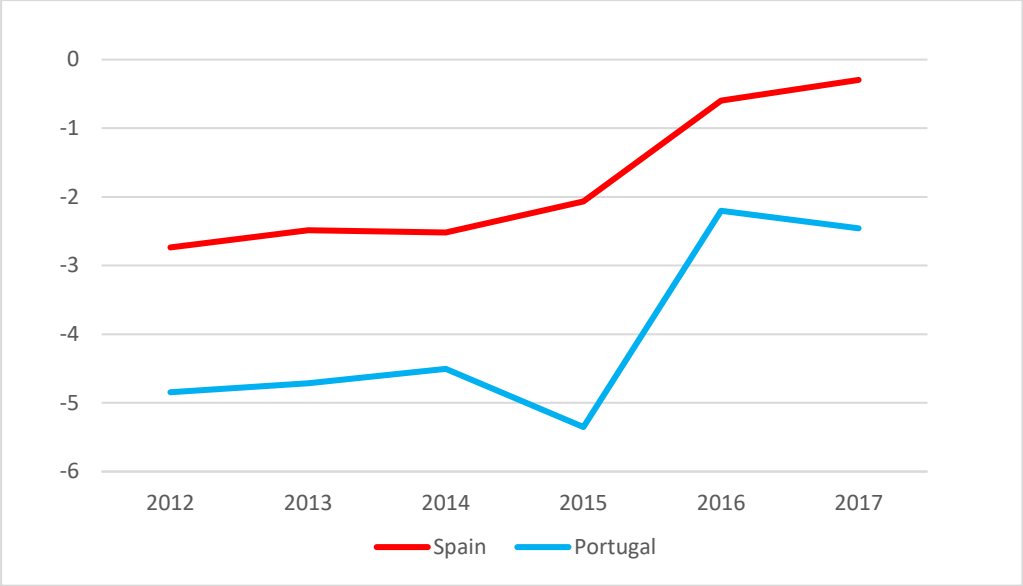


Panel B: Percentage of bankruptcy filings in Portugal by firm size



Source: Authors' computations. Micro-firms have less than 10 employees and a turnover of less than € 2 million or total assets less than € 2 million. Financially distressed firms are all firms under bankruptcy proceedings and non-bankrupt firms with an Altman's Z-Score lower than 1.1 during two consecutive years.

Panel C: Difference between the percentage of bankruptcy filings by micro-firms and the percentage of bankruptcy filings by non-micro firms by country

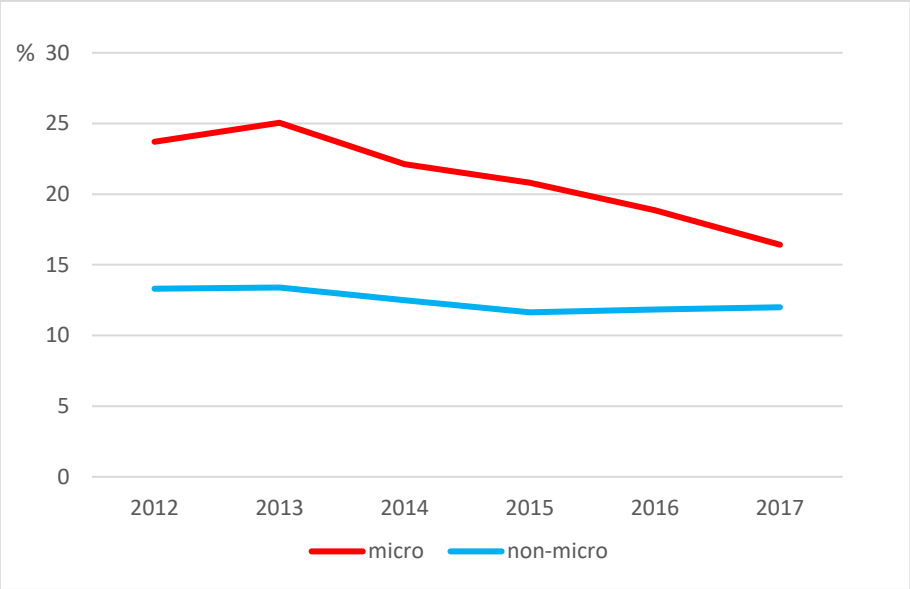


Source: Authors' computations. For each country, the difference is computed by subtracting the percentage of bankruptcy filings by non-micro firms from the percentage of bankruptcy filings by micro-firms, as computed in Panels A and B.

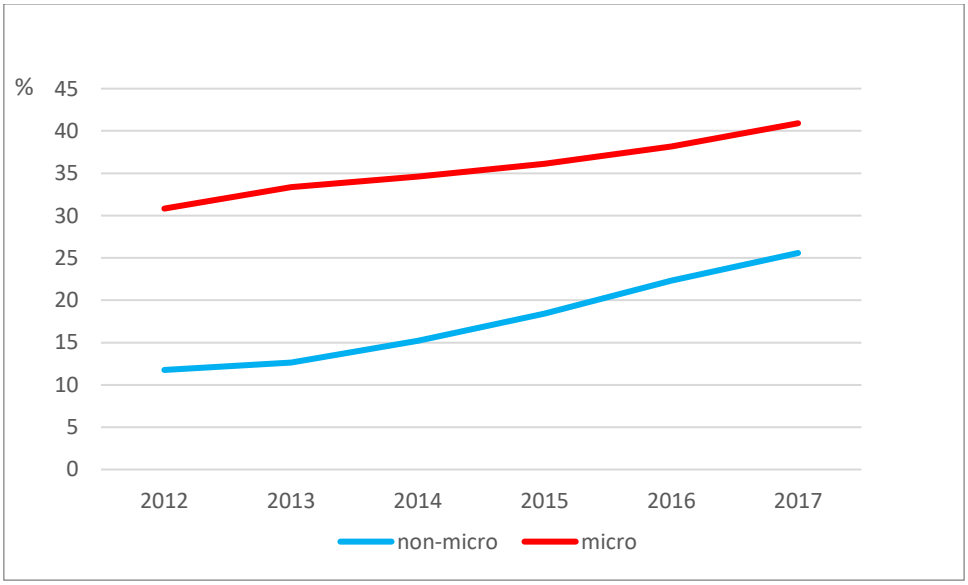
Figure 5: Evolution of the percentage of market exits

in a subsample of distressed firms

Panel A: Percentage of market exits by Spanish companies by firm size

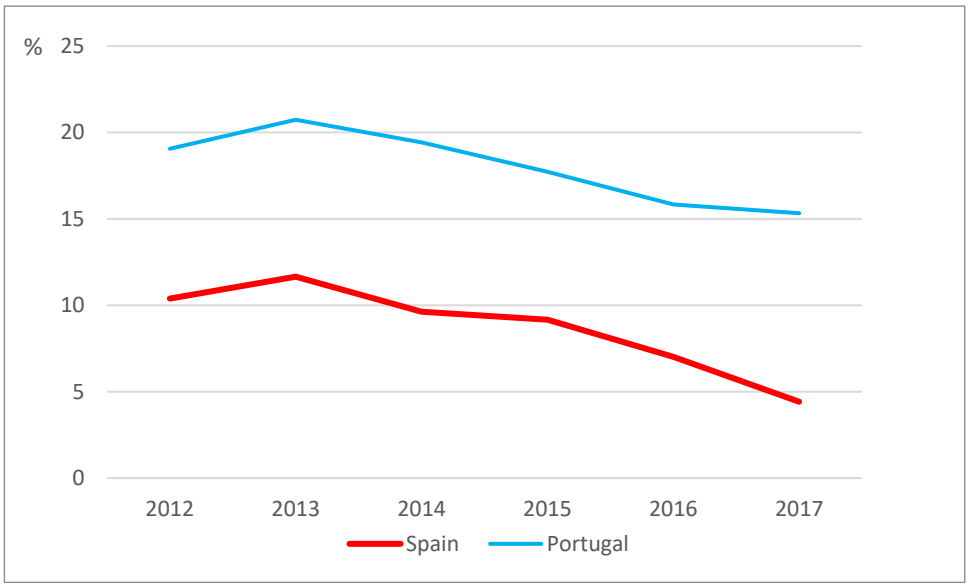


Panel B: Percentage of market exits by Portuguese companies by firm size



Source: Authors' computations. Micro-firms have less than 10 employees and a turnover of less than € 2 million or total assets less than € 2 million. Financially distressed firms are all firms under bankruptcy proceedings and non-bankrupt firms with an Altman's Z-Score lower than 1.1 during two consecutive years.

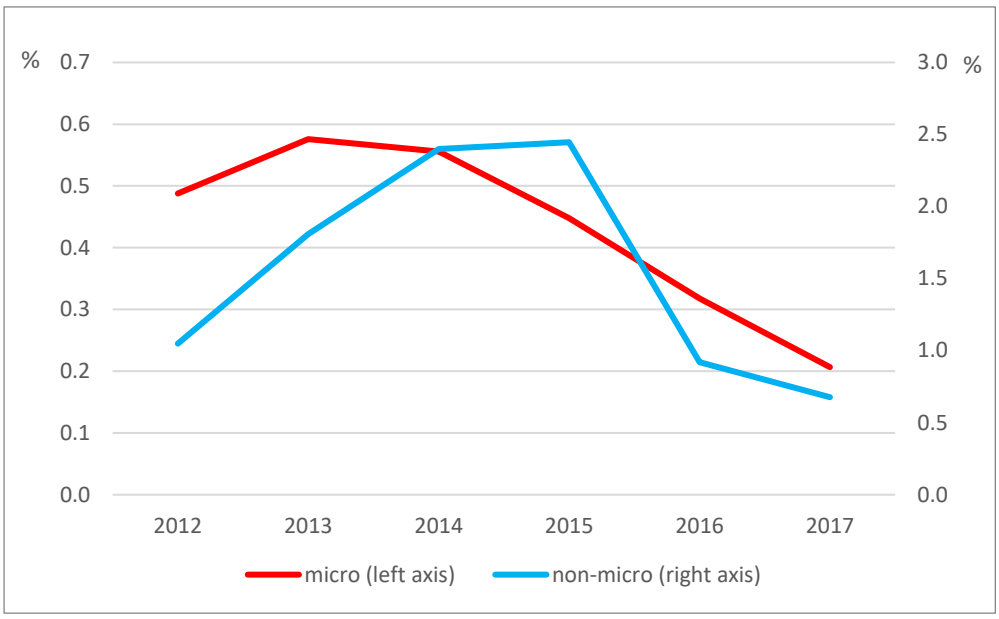
Panel C: Difference between the percentage of market exits by micro-firms and the percentage of market exits by non-micro firms by country



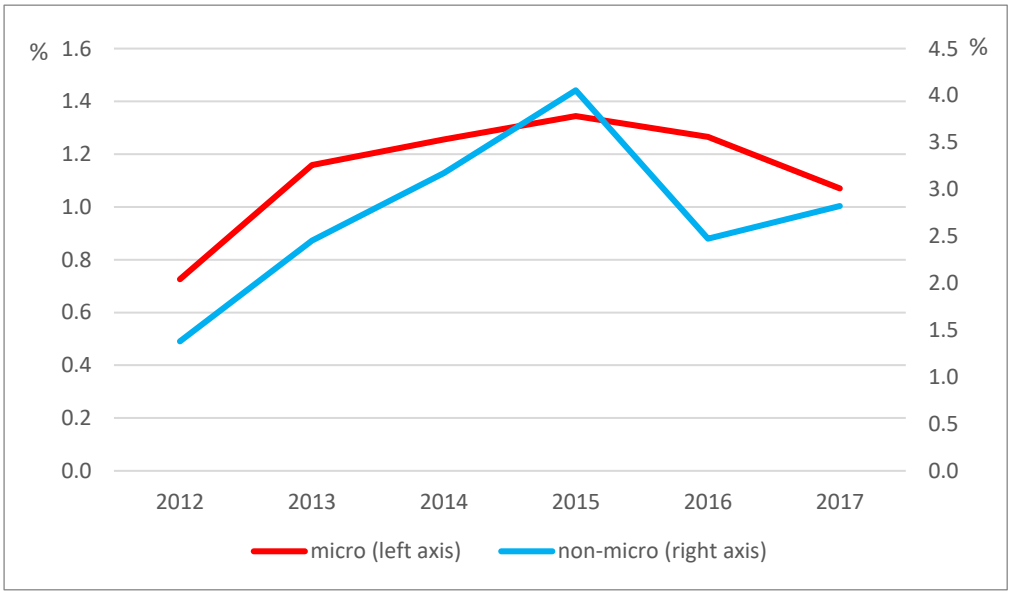
Source: Authors' computations. For each country, the difference is computed by subtracting the percentage of market exits by non-micro firms from the percentage of market exits by micro-firms, as computed in Panels A and B.

Figure 6: Evolution of the percentage of exits through bankruptcy in a subsample of distressed firms

Panel A: Percentage of exits through bankruptcy by Spanish companies by firm size

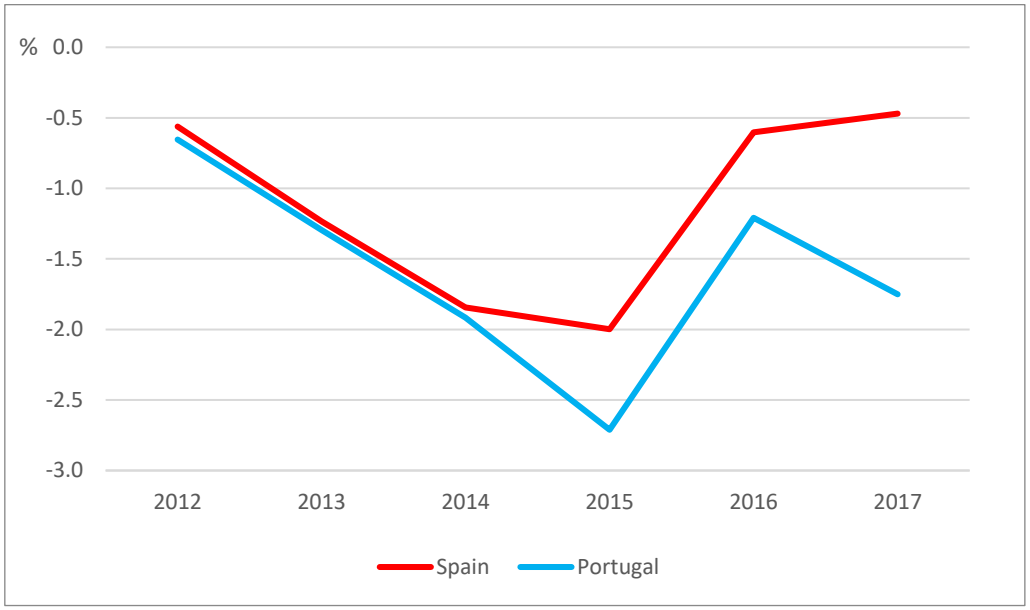


Panel B: Percentage of exits through bankruptcy by Portuguese companies by firm size



Source: Authors' computations. Micro-firms have less than 10 employees and a turnover of less than € 2 million or total assets less than € 2 million. Financially distressed firms are all firms under bankruptcy proceedings and non-bankrupt firms with an Altman's Z-Score lower than 1.1 during two consecutive years.

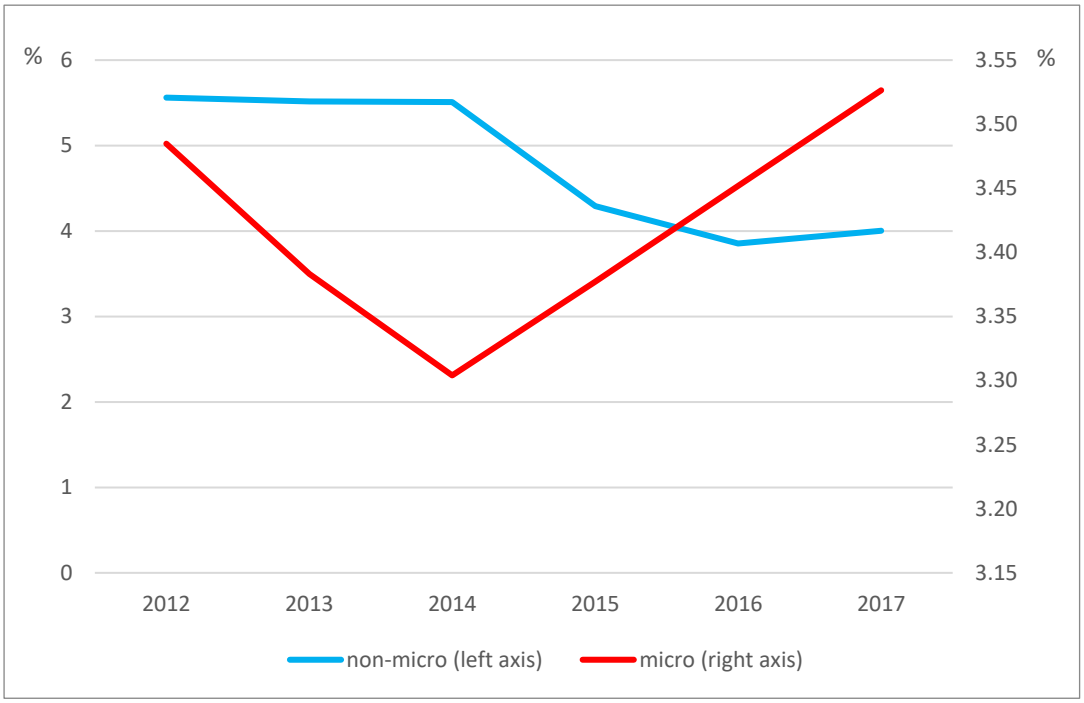
Panel C: Difference between the percentage of exits through bankruptcy by micro-firms and the percentage of exits through bankruptcy by non-micro firms by country



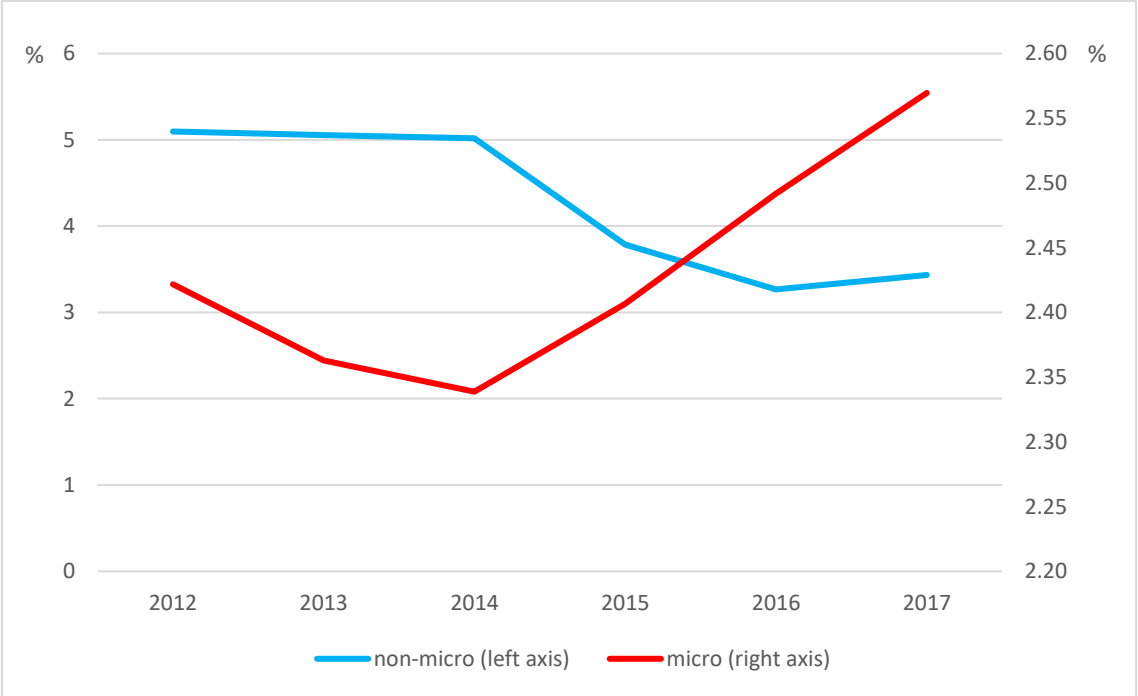
Source: Authors' computations. For each country, the difference is computed by subtracting the percentage of exits through bankruptcy by non-micro firms from the percentage of exits through bankruptcy by micro-firms, as computed in Panels A and B.

Figure 7: Evolution of the average log of physical capital

Panel A: Average log of capital in Spanish companies by firm size

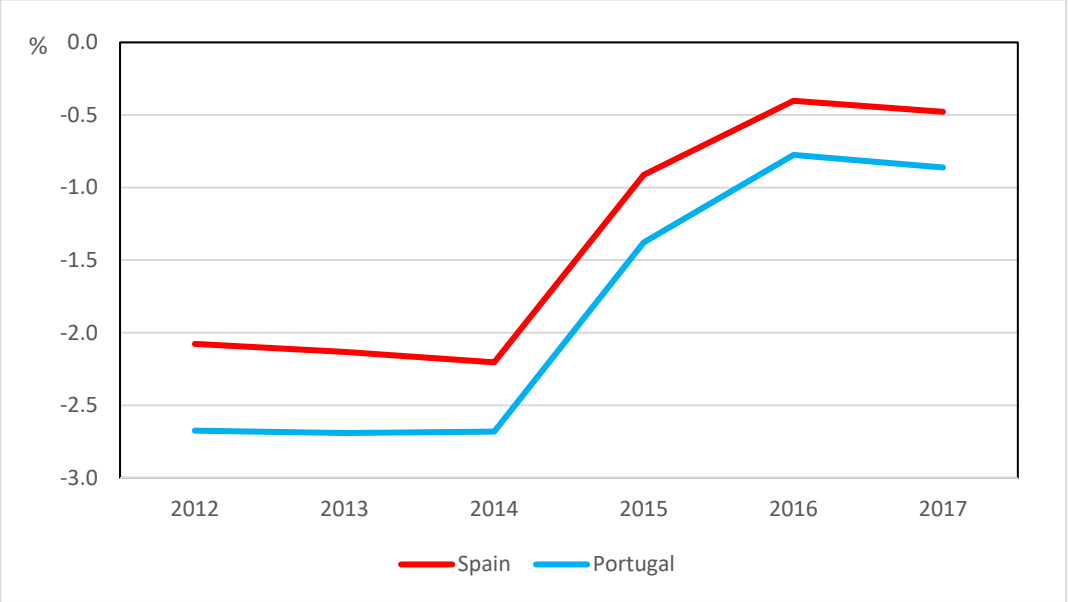


Panel B: Average log of capital in Portuguese companies by firm size



Source: Authors' computations. Micro-firms have less than 10 employees and a turnover of less than € 2 million or total assets less than € 2 million. Physical capital corresponds to tangible fixed assets (i.e., land, buildings, plant and machinery).

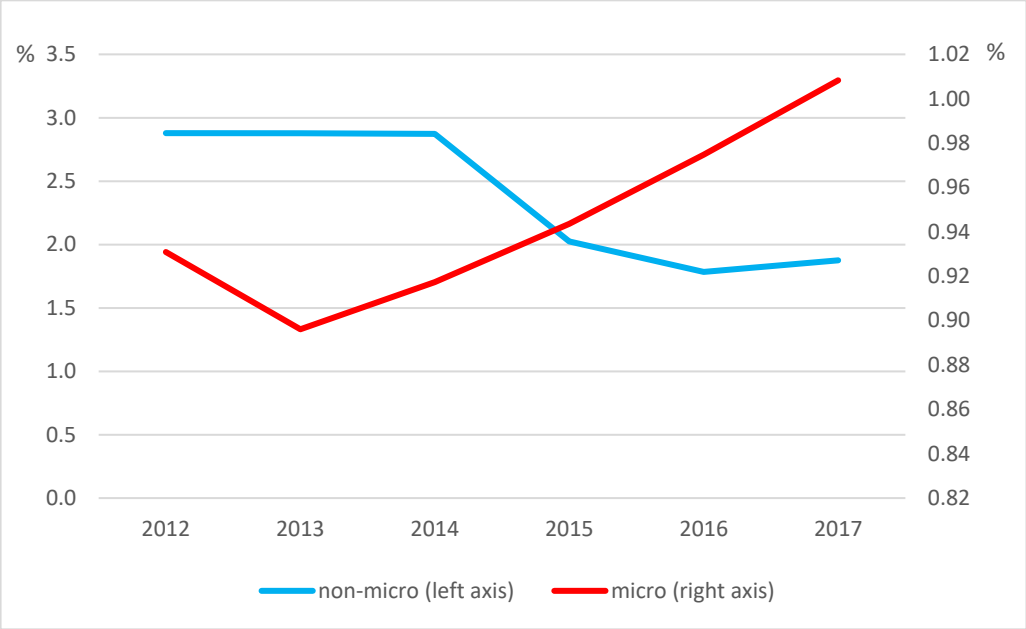
Panel C: Difference between the average log of capital of micro-firms and the average log of capital of non-micro firms by country



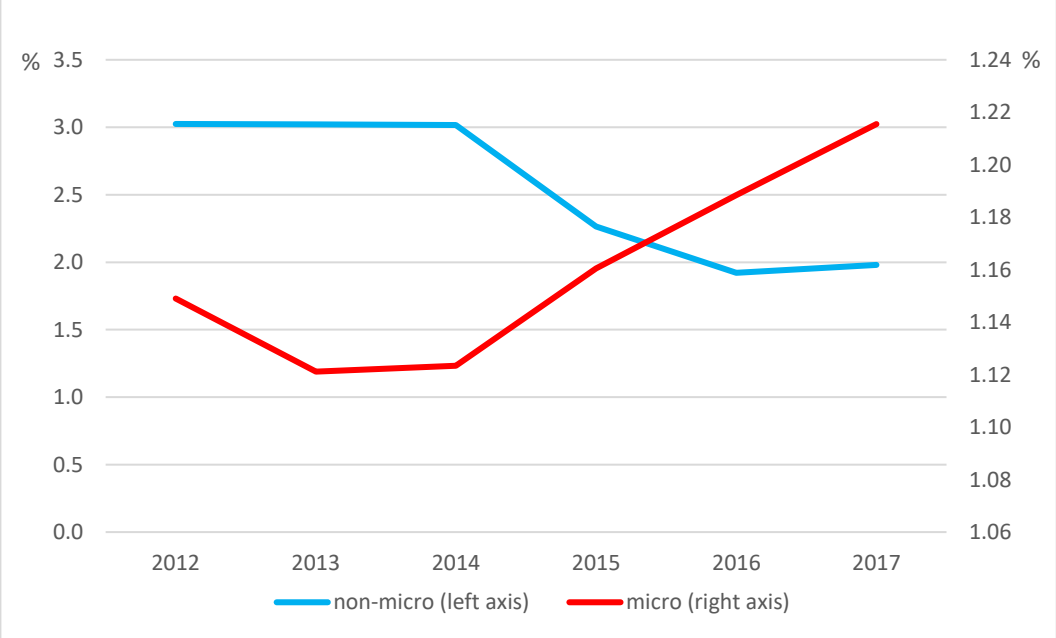
Source: Authors' computations. For each country, the difference is computed by subtracting the average log of capital of non-micro firms from the average log of capital of micro-firms, as computed in Panels A and B.

Figure 8: Evolution of the average log of employment

Panel A: Average log of employment in Spanish companies by firm size

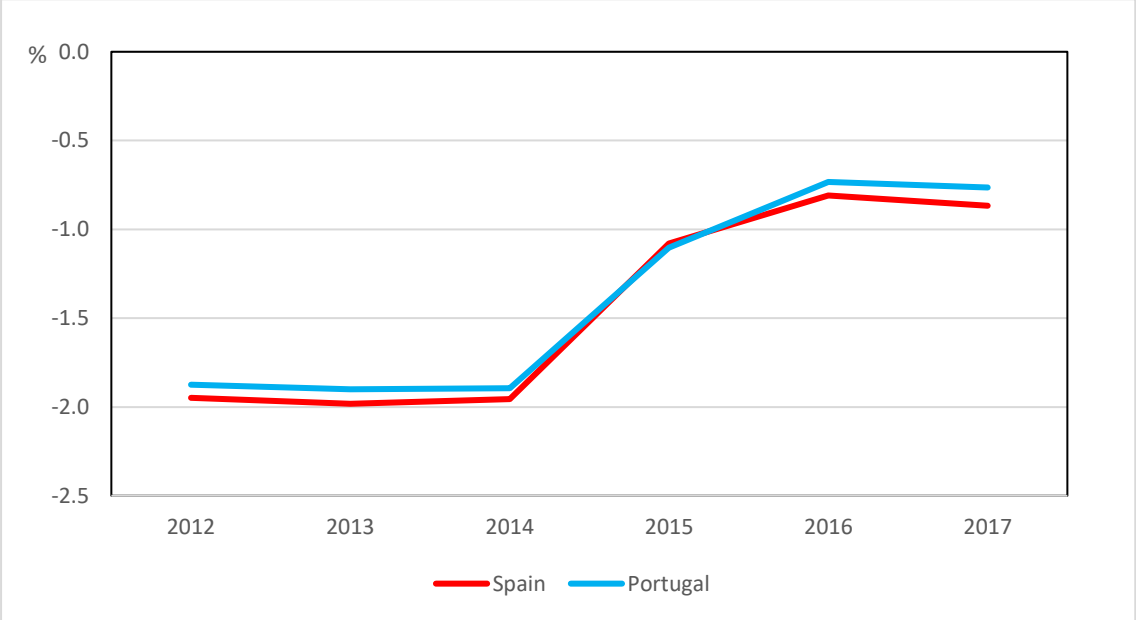


Panel B: Average log of employment in Portuguese companies by firm size



Source: Authors' computations. Micro-firms have less than 10 employees and a turnover of less than € 2 million or total assets less than € 2 million. In both panels we depict the log of the total number of employees plus 1 in order to avoid excluding firms with no employees.

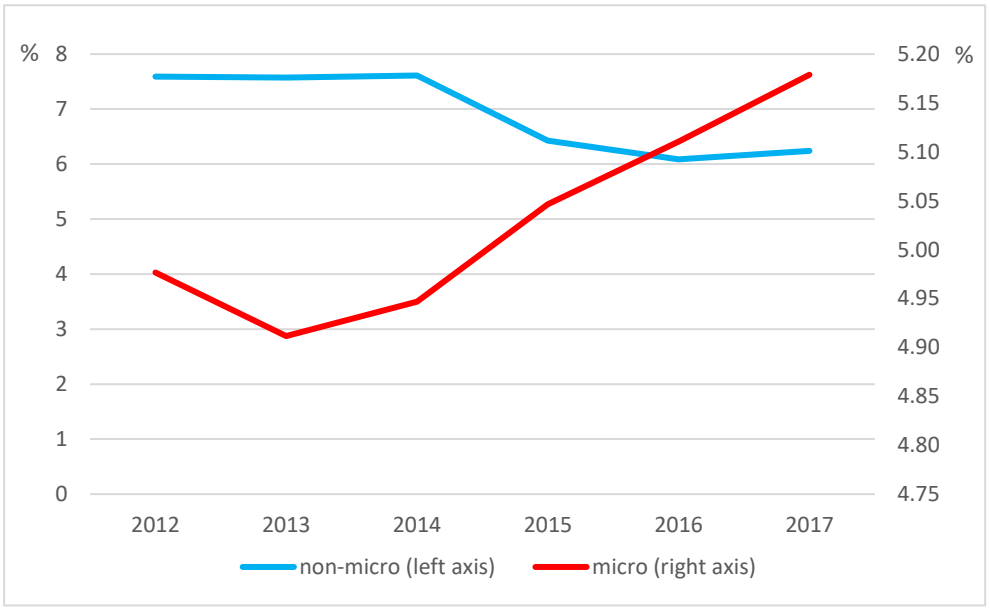
Panel C: Difference between the average log of employment of micro-firms and the average log of employment of non-micro firms by country



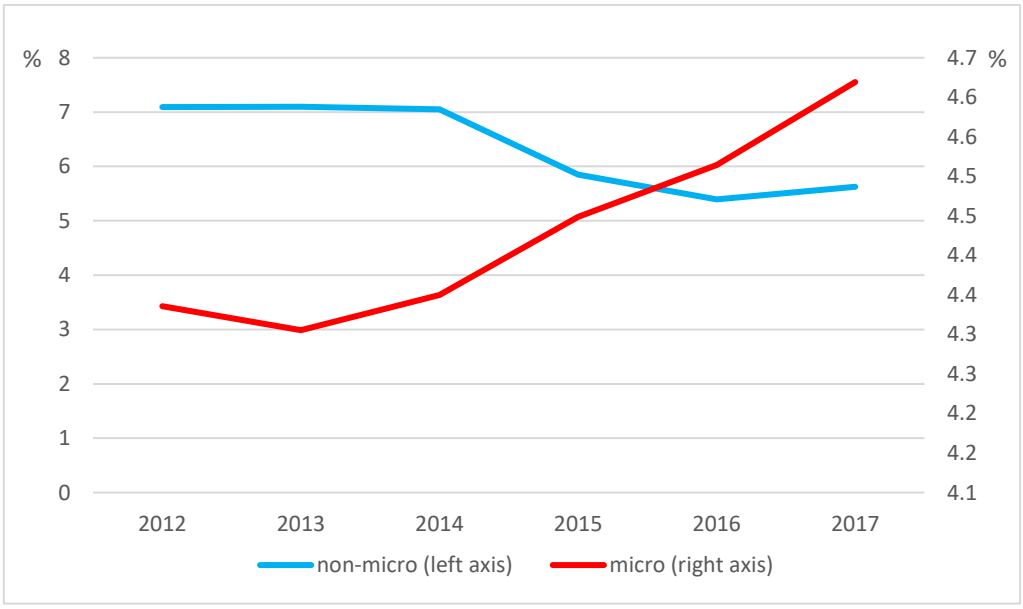
Source: Authors' computations. For each country, the difference is computed by subtracting the average log of employment of non-micro firms from the average log of employment of micro-firms, as computed in Panels A and B.

Figure 9: Evolution of the average log of real turnover

Panel A: Average log of real turnover in Spanish companies by firm size

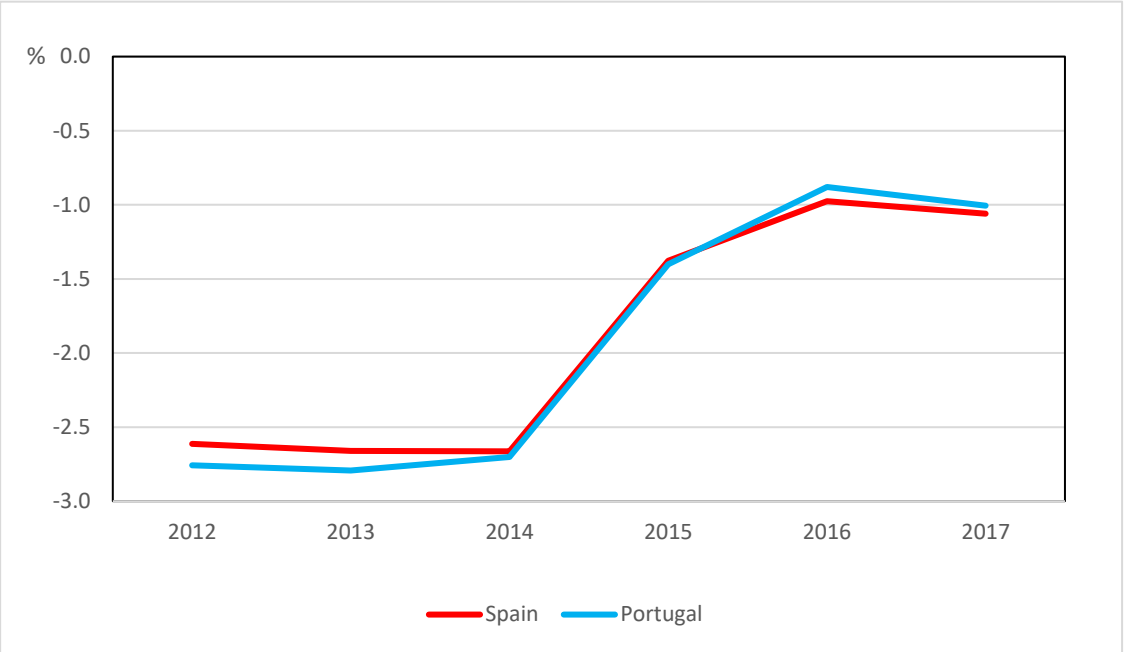


Panel B: Average log of real turnover in Portuguese companies by firm size



Source: Authors' computations. Micro-firms have less than 10 employees and a turnover of less than € 2 million of total assets less than € 2 million. Real turnover is constructed as the sales of goods and services adjusted by the deflators of the value added at the 2-digit industry level of Spain and Portugal.

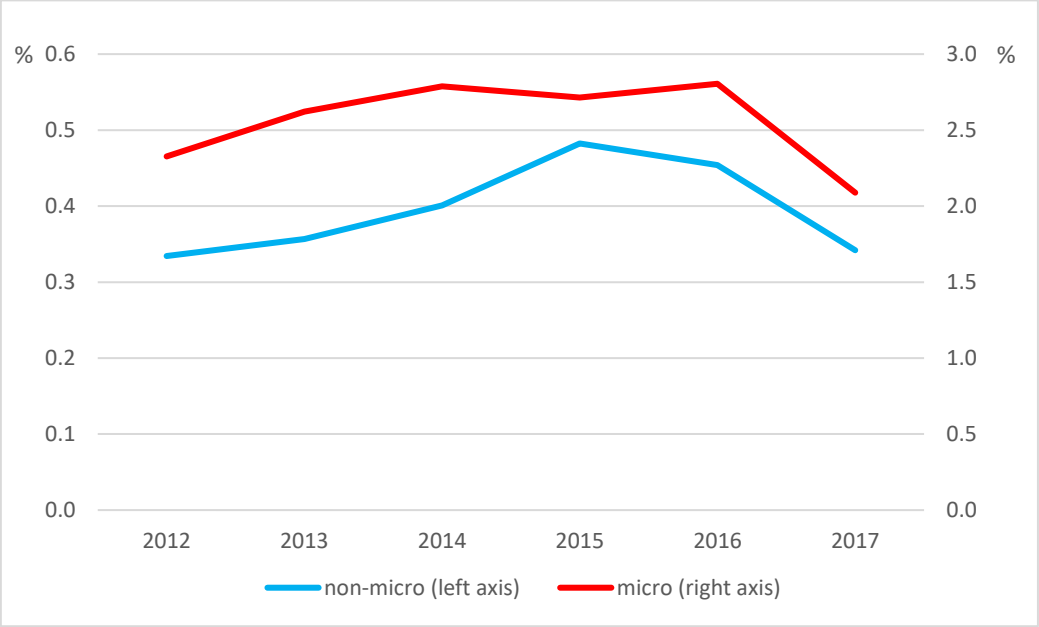
Panel C: Difference between the average log of turnover of micro-firms and the average log of turnover of non-micro firms by country



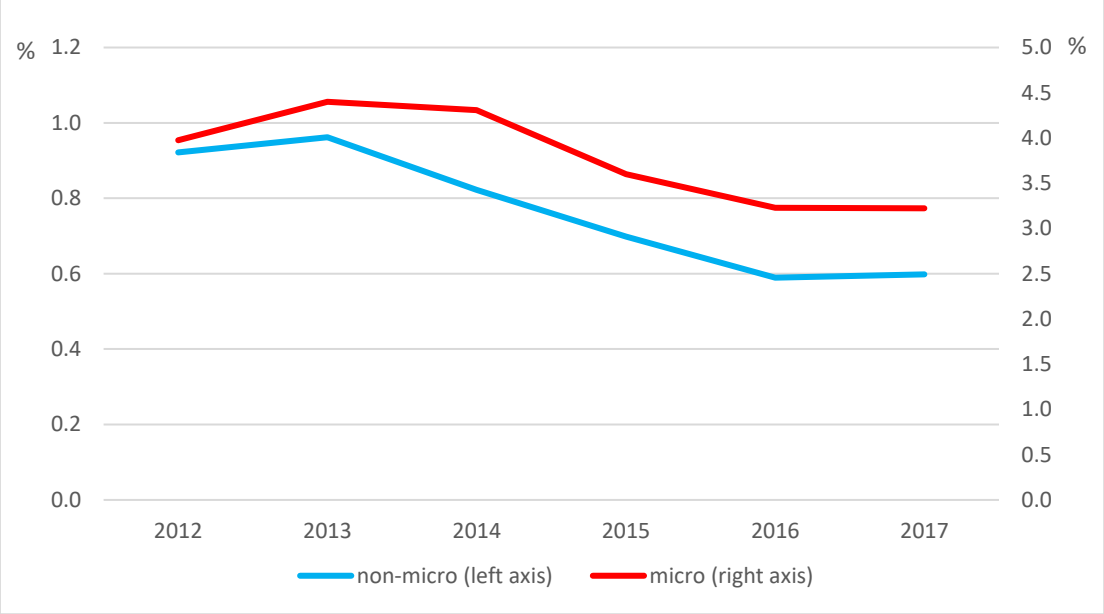
Source: Authors' computations. For each country, the difference is computed by subtracting the average log of turnover of non-micro firms from the average log of turnover of micro-firms, as computed in Panels A and B.

Figure 10: Evolution of the percentage of firm entries

Panel A: Percentage of firm entries by Spanish companies by firm size

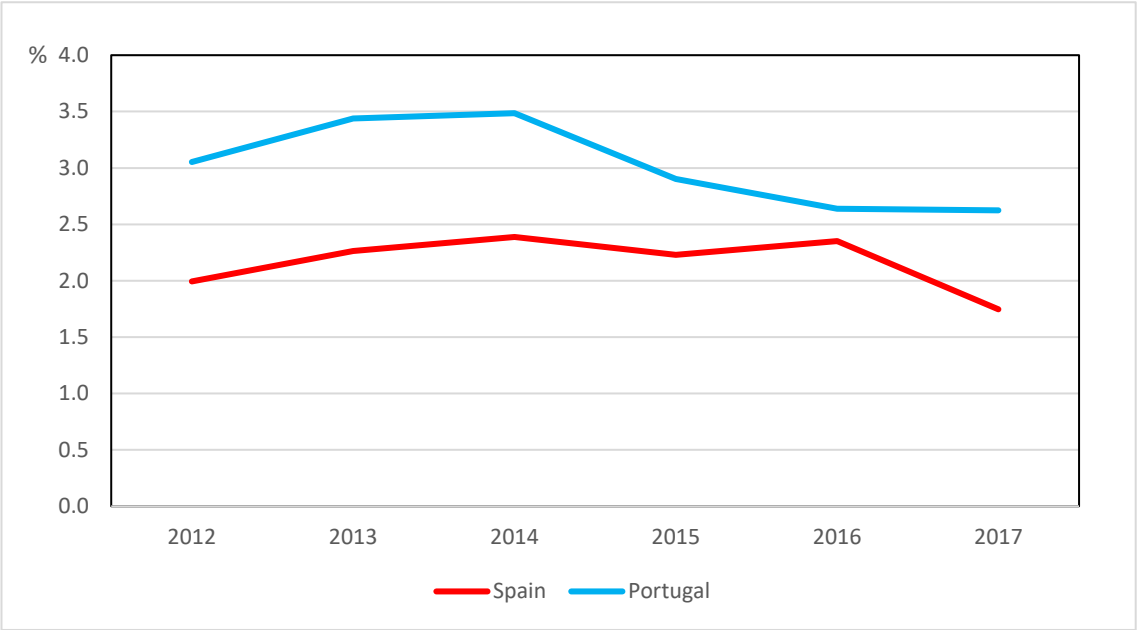


Panel B: Percentage of firm entries by Portuguese companies by firm size



Source: Authors' computations. Micro-firms have less than 10 employees and a turnover of less than € 2 million or total assets less than € 2 million.

Panel C: Difference between the percentage of entries by micro-firms and the percentage of entries by non-micro firms by country



Source: Authors' computations. For each country, the difference is computed by subtracting the percentage of entries by non-micro firms from the percentage of entries by micro-firms, as computed in Panels A and B.

Table X1: Description of the variables for the analyses of Section 6

Dependent variables		
Variable	Definition	Source
Bankruptcy filing	Dummy that equals 1 in the year in which the firm filed for bankruptcy and 0 otherwise.	Banco de España and Banco de Portugal
Exit	Dummy that equals 1 in the year in which the firm exited the market and 0 otherwise.	iBACH
Exit through bankruptcy	Dummy that equals 1 if a firm that was undergoing a bankruptcy procedure exited the market in a certain year and 0 otherwise.	
Entry	Dummy that equals 1 in the year in which the firm entered the market and 0 otherwise.	iBACH
Log of physical capital	Natural log of tangible fixed assets, in thousands of euros.	iBACH
Log of total employment	Natural log of total employment plus 1.	iBACH
Log of real turnover	Natural log of real turnover, i.e., sales of goods and services adjusted by the deflator of the value added at the 2-digit industry level, in thousands of euros.	iBACH and OECD STAN Industrial Analysis
Bankruptcy status	Dummy variable that equals 1 if the firm was undergoing bankruptcy proceedings during a certain year and 0 otherwise.	Banco de España and Banco de Portugal
Intangibles	Ratio of intangible fixed assets to total assets, in percentage terms.	iBACH
Explanatory variables		
Variable	Definition	Source
Micro	Dummy variable that equals 1 if the firm was a micro-firm before the introduction of the fresh start policy in 2015 and 0 otherwise. Micro-firms must have less than 10 employees and a turnover of less than € 2 million or total assets less than € 2 million (European Commission definition).	iBACH
Age	Natural log of the firm's age plus 1. Age is the difference between the current year and its year of incorporation.	iBACH
Size	Natural log of total assets, in thousands of euros.	iBACH
ROA	Return on assets, computed as the ratio of net income to total assets, in percentage terms.	iBACH
Total leverage	Ratio of financial debt (bonds and similar obligations and amounts owed to credit institutions, including financial leasing) and non-financial debt (trade payables, tax and social security payables, staff debt, active dividends to be paid, payments received on account of orders and deferred liabilities) to total assets, in percentage terms. We do not include intra-group debt.	iBACH
Financial leverage	Ratio of financial debt (bonds and similar obligations and amounts owed to credit institutions, including financial leasing) to total asssets, in percentage terms. We do not include intra-group debt.	iBACH
Share of public credit and staff debt	Share of public credit (mainly tax and social security contributions) and staff debt to the company's total debt, in percentage terms.	iBACH
Negative equity	Dummy variable that equals 1 if the firm has negative equity and 0 otherwise. Negative equity means that a company's debts exceed the value of its assets.	iBACH
Tangibility	Ratio of tangible fixed assets to total assets, in percentage terms.	iBACH
Liquidity ratio	Ratio of cash, deposits and other current financial assets to total assets, in percentage terms.	iBACH
Interest coverage ratio (ICR)	Ratio of a company's earnings before interest, taxes and depreciation (EBITDA) to its interest expense.	iBACH
Current ratio	Ratio of current assets to current liabilities.	iBACH
Altman's Z-score	A linear combination of four financial ratios, weighted by their coefficients. The version used in this paper is for non-listed firms that do not necessarily belong to the manufacturing sector. See Altman (1968).	iBACH
Industry	The firm's sector of economic activity measured at a 4-digit level, according to the NACE rev. 4 classification.	iBACH
Region	The firm's location at the NUTS-3 level (e.g. provinces in Spain).	iBACH

Note: iBACH stands for Micro Bank for the Accounts of Companies Harmonized.

Table X2: Descriptive statistics of bankrupt firms								
PANEL A: MICRO-FIRMS								
	SPAIN				**PORTUGAL**			
	Before reform		After reform		Before reform		After reform	
	2013-2014		2015-2016		2013-2014		2015-2016	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
total assets	2,180.28	3,280.56	2,031.46	3,236.81	711.62	1,601.10	777.47	1,674.90
employment	1.61	2.75	1.27	3.20	2.32	2.63	2.05	2.77
turnover	403.89	606.12	469.25	846.08	333.16	711.81	377.64	766.97
tangible fixed assets	218.99	268.68	203.41	267.09	88.48	172.31	91.12	175.88
age	15.87	8.31	16.88	8.40	15.28	10.26	16.79	10.45
roa	-29.82	59.37	-22.66	55.83	-27.03	50.67	-21.66	46.70
total leverage	182.12	186.95	197.52	204.94	175.55	167.03	176.26	173.17
financial leverage	48.05	42.42	47.08	45.05	33.55	36.88	34.10	38.21
negative equity	0.70	0.46	0.71	0.45	0.64	0.48	0.64	0.48
interest coverage ratio	-12.84	32.47	-9.73	32.54	-11.56	25.36	-8.88	27.28
liquidity ratio	12.73	23.39	16.01	26.66	10.68	20.68	11.57	22.12
current ratio	5.09	17.25	5.14	17.78	1.48	5.07	1.75	6.76
Z-score	-129.63	263.57	-80.09	272.48	-125.36	171.33	-102.91	174.47
tangibility	28.62	33.48	28.02	34.58	19.65	26.39	18.80	26.61
share public credit & staff debt	42.65	34.76	45.27	36.36	37.33	31.96	39.11	32.30
NUMBER OF OBSERVATIONS	4,169		3,054		4,429		3,377	
NUMBER OF FIRMS	3,046		2,117		3,611		2,651	
PANEL B: NON-MICRO FIRMS								
	SPAIN				**PORTUGAL**			
	Before reform		After reform		Before reform		After reform	
	2013-2014		2015-2016		2013-2014		2015-2016	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
total assets	4,447.97	4,310.22	3,990.92	4,213.85	3,050.34	3,629.66	2,967.05	3,723.19
employment	19.49	17.31	12.89	16.84	23.30	18.83	18.84	19.52
turnover	2,347.41	2,855.08	1,606.49	2,337.25	1,275.06	1,928.25	1,162.78	1,757.62
tangible fixed assets	401.13	279.65	337.19	289.14	313.77	275.14	288.26	284.04
age	20.81	9.49	21.42	9.47	21.10	11.84	21.72	12.16
roa	-30.38	57.29	-21.16	53.86	-37.16	52.22	-33.79	53.42
total leverage	123.08	132.80	151.22	166.45	132.39	113.11	152.90	140.45
financial leverage	39.12	36.85	39.93	40.84	39.99	32.48	40.58	35.97
negative equity	0.60	0.49	0.64	0.48	0.53	0.50	0.61	0.49
interest coverage ratio	-5.87	40.51	-3.06	40.17	-12.79	26.32	-12.47	28.38
liquidity ratio	10.76	17.05	13.18	21.33	6.62	13.94	8.06	17.23
current ratio	2.48	8.77	3.68	13.55	1.16	3.58	1.36	5.44
Z-score	-113.38	369.37	-51.78	372.42	-215.28	252.21	-189.90	241.74
tangibility	33.59	28.86	31.06	30.55	28.36	26.62	27.64	28.54
share public credit & staff debt	41.35	30.27	45.23	32.90	33.26	27.75	38.18	29.31
NUMBER OF OBSERVATIONS	1,602		1,757		1,713		1,491	
NUMBER OF FIRMS	1,212		1,235		1,367		1,155	

Notes: (i) The variables total assets, turnover and tangible fixed assets are in thousands of euros. Turnover is expressed in real terms, i.e., sales of goods and services adjusted by the deflator of the value added at the 2-digit industry level. (ii) Micro-firms are defined as those with less than 10 employees and a turnover of less than € 2 million or total assets less than € 2 million (European Commission definition) before the introduction of the fresh start policy in 2015.

Table X3: Descriptive statistics of non-bankrupt firms								
PANEL A: MICRO-FIRMS								
	SPAIN				**PORTUGAL**			
	Before reform		After reform		Before reform		After reform	
	2013-2014		2015-2016		2013-2014		2015-2016	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
total assets	606.28	1,436.40	644.86	1,459.91	296.53	843.78	324.76	870.55
employment	1.76	2.37	2.09	3.30	2.18	2.29	2.47	3.07
turnover	298.91	550.66	355.82	671.15	242.98	547.58	264.42	576.26
tangible fixed assets	248.58	810.33	263.26	833.20	84.32	435.46	96.32	462.48
age	11.53	8.19	13.32	8.29	12.07	10.50	13.72	10.40
roa	-5.17	31.08	-1.83	26.60	-10.42	42.81	-5.40	37.78
total leverage	70.42	94.08	67.03	92.67	88.91	125.18	84.67	125.89
financial leverage	14.01	25.10	13.28	23.74	10.75	22.06	10.46	21.08
negative equity	0.21	0.41	0.19	0.40	0.28	0.45	0.26	0.44
interest coverage ratio	4.85	26.68	9.24	28.19	5.40	26.97	9.45	27.74
liquidity ratio	23.59	29.26	23.97	28.61	21.59	28.35	21.95	27.78
current ratio	6.04	17.16	6.39	17.62	6.45	16.19	7.58	17.57
Z-score	39.82	201.94	70.02	210.86	14.63	167.57	42.29	179.98
tangibility	31.46	33.91	31.73	33.66	21.91	28.47	22.07	28.58
share public credit & staff debt	59.06	37.24	59.13	36.90	56.96	36.62	56.49	36.52
NUMBER OF OBSERVATIONS	1,584,778		1,428,646		628,200		566,767	
NUMBER OF FIRMS	893,710		771,890		344,993		295,773	
PANEL B: NON-MICRO FIRMS								
	SPAIN				**PORTUGAL**			
	Before reform		After reform		Before reform		After reform	
	2013-2014		2015-2016		2013-2014		2015-2016	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
total assets	3,532.41	3,864.14	1,783.31	3,178.37	2,685.93	3,486.27	1,337.20	2,738.17
employment	22.68	17.87	10.96	16.63	23.86	18.33	12.34	17.18
turnover	3,246.92	3,174.80	1,597.60	2,663.53	2,475.66	3,009.85	1,217.80	2,304.82
tangible fixed assets	1,039.42	1,865.05	534.09	1,399.12	798.12	1,682.87	397.50	1,216.52
age	17.93	9.82	10.79	11.24	18.27	11.66	9.89	12.33
roa	0.11	18.23	-3.63	34.75	-1.88	24.05	-10.00	48.91
total leverage	54.26	44.50	63.24	74.45	68.09	61.71	79.92	97.83
financial leverage	16.56	20.37	13.70	23.03	19.36	21.72	13.71	22.90
negative equity	0.08	0.27	0.15	0.36	0.12	0.33	0.21	0.41
interest coverage ratio	16.54	38.22	13.85	36.37	14.07	33.79	12.20	32.92
liquidity ratio	18.89	20.83	27.20	30.10	13.63	18.39	23.69	29.47
current ratio	3.03	7.70	3.85	12.05	2.93	8.40	4.16	11.85
Z-score	274.42	361.87	168.98	309.17	215.68	348.02	129.04	288.25
tangibility	28.36	25.90	27.19	30.23	27.81	25.77	24.26	27.76
share public credit & staff debt	39.06	30.24	51.94	36.22	37.63	29.26	50.36	35.75
NUMBER OF OBSERVATIONS	185,100		429,751		77,293		157,731	
NUMBER OF FIRMS	102,285		267,800		40,807		96,163	

Notes: (i) The variables total assets, turnover and tangible fixed assets are in thousands of euros. Turnover is expressed in real terms, i.e., sales of goods and services adjusted by the deflator of the value added at the 2-digit industry level. (ii) Micro-firms are defined as those with less than 10 employees and a turnover of less than € 2 million or total assets less than € 2 million (European Commission definition) before the introduction of the fresh start policy in 2015.

Table X4: The impact of the fresh start on the probability of bankruptcy filings by Spanish micro-firms (Interest Coverage Ratio<1 during two consecutive years and at least 5 years old)

This table shows the coefficient of the interaction term ES*MICRO*POST in OLS regressions in which the dependent variable is a dummy that equals 1 if the firm filed for bankruptcy between 2013 and 2016. ES is a dummy that equals 1 if the firm is Spanish, MICRO is a dummy that equals 1 if the firm was a micro-firm before the introduction of the fresh start policy in 2015 and POST is a dummy that equals 1 for observations from 2015 on. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. The sample includes all firms that filed for bankruptcy between 2013 and 2016 and all financially distressed firms, where a firm is considered to be distressed if its interest coverage ratio is less than 1 during two consecutive years, it is at least 5 years old and has positive debt. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable MICRO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed efffects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	bankruptcy filing	bankruptcy filing	bankruptcy filing	bankruptcy filing
ES*MICRO*POST	0.056***	0.042***	0.040***	0.037***
	(0.007)	(0.009)	(0.009)	(0.010)
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	382,651	137,628	136,884	120,930
R-squared	0.396	0.420	0.448	0.526

Table X5: The impact of the fresh start on the probability of bankruptcy filings by Spanish micro-firms (Negative equity during two consecutive years)

This table shows the coefficient of the interaction term ES*MICRO*POST in OLS regressions in which the dependent variable is a dummy that equals 1 if the firm filed for bankruptcy between 2013 and 2016. ES is a dummy that equals 1 if the firm is Spanish, MICRO is a dummy that equals 1 if the firm was a micro-firm before the introduction of the fresh start policy in 2015 and POST is a dummy that equals 1 for observations from 2015 on. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. The sample includes all firms that filed for bankruptcy between 2013 and 2016 and all financially distressed firms, where a firm is considered to be distressed if it has negative equity during two consecutive years. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable MICRO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed efffects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	bankruptcy filing	bankruptcy filing	bankruptcy filing	bankruptcy filing
ES*MICRO*POST	0.052***	0.025***	0.023***	0.020***
	(0.006)	(0.005)	(0.005)	(0.005)
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	664,141	368,505	367,988	348,281
R-squared	0.396	0.419	0.429	0.480

Table X6: The impact of the fresh start on the probability of bankruptcy filings by Spanish micro-firms (Z-score<1.1 during two consecutive years)

This table shows the coefficient of ES*MICRO*POST in OLS regressions in which the dependent variable is a dummy that equals 1 if the firm filed for bankruptcy between 2013 and 2016. ES is a dummy that equals 1 if the firm is Spanish, MICRO is a dummy that equals 1 if the firm was a micro-firm before the introduction of the fresh start policy in 2015 and POST is a dummy that equals 1 for observations from 2015 on. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. The sample includes all firms that filed for bankruptcy between 2013 and 2016 and all financially distressed firms, where a firm is considered to be distressed if it has an Altman's Z-score less than 1.1 during two consecutive years and positive debt. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable MICRO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed effects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	bankruptcy filing	bankruptcy filing	bankruptcy filing	bankruptcy filing
ES*MICRO*POST	0.046***	0.033***	0.032***	0.031***
	(0.005)	(0.005)	(0.006)	(0.006)
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	840,265	403,750	403,235	382,209
R-squared	0.392	0.423	0.434	0.489

Table X7: The impact of the fresh start on the probability of bankruptcy filings by Spanish micro-firms: breakdown by the ratio of dischargeable debt to total assets

This table is equal to Tables 4, 5 and 6, but restricting the samples to firms a high and a low ratio of dischargeable debt to total assets (Panel A and Panel B, respectively), where "high" means greater than or equal to the median of that variable in each country and "low" means lower than the corresponding median. We proxy a firm's dischargeable debt by the difference between its total debt and the sum of its public credit (mainly taxes and social security contributions) and its staff debt (wages and related debt towards its employees). The samples includes all firms that filed for bankruptcy between 2013 and 2016 and all financially distressed firms. In column (1) a firm is distressed if its interest coverage ratio (ICR) is less than 1 during two consecutive years and it is at least 5 years old. In column (2) a firm is distressed if it has negative equity during two consecutive years. In column (3) a firm is distressed if it has an Altman's Z-score less than 1.1 during two consecutive years. In all the definitions of financial distress, the firm must also have positive debt.

SUBSAMPLE OF DISTRESSED FIRMS	ICR<1 & age>=5	negative equity	Z-score<1.1
Panel A: High ratio of dischargeable debt to total assets			
	(1)	(2)	(3)
VARIABLES	bankruptcy filing	bankruptcy filing	bankruptcy filing
ES*MICRO*POST	0.048***	0.026***	0.048***
	(0.014)	(0.008)	(0.009)
Observations	61,827	151,801	160,263
R-squared	0.538	0.502	0.510
Panel B: Low ratio of dischargeable debt to total assets			
	(1)	(2)	(4)
VARIABLES	bankruptcy filing	bankruptcy filing	bankruptcy filing
ES*MICRO*POST	0.026*	0.006	0.005
	(0.016)	(0.008)	(0.007)
Observations	41,779	159,823	181,710
R-squared	0.574	0.510	0.516
Lagged firm controls	YES	YES	YES
Firm fixed effects	YES	YES	YES
Time-varying group effects	YES	YES	YES
Region-industry-time fixed effects	YES	YES	YES

Table X8: The impact of the fresh start on the probability of exit by Spanish micro-firms (Interest Coverage Ratio<1 during two consecutive years and at least 5 years old)

This table shows the coefficient of the interaction term ES*MICRO*POST in OLS regressions, in which the dependent variable is a dummy that equals 1 if the firm exited the market in a certain year and 0 otherwise. ES is a dummy that equals 1 if the firm is Spanish, MICRO is a dummy that equals 1 if the firm was a micro-firm before the introduction of the fresh start policy in 2015 and POST is a dummy that equals 1 for observations from 2015 on. The sample includes all firms that filed for bankruptcy between 2013 and 2016 and all financially distressed firms, where a firm is considered to be distressed if its interest coverage ratio is less than 1 during two consecutive years, it is at least 5 years old and has positive debt. The period of analysis is 2013-2016. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable MICRO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed efffects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	exit	exit	exit	exit
ES*MICRO*POST	0.018***	0.022***	0.024***	0.023***
	(0.007)	(0.008)	(0.008)	(0.008)
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	382,651	137,628	137,288	137,275
R-squared	0.870	0.883	0.886	0.886

Table X9: The impact of the fresh start on the probability of exit by Spanish micro-firms (Negative equity during two consecutive years)

This table shows the coefficient of the interaction term ES*MICRO*POST in OLS regressions, in which the dependent variable is a dummy that equals 1 if the firm exited the market in a certain year and 0 otherwise. ES is a dummy that equals 1 if the firm is Spanish, MICRO is a dummy that equals 1 if the firm was a micro-firm before the introduction of the fresh start policy in 2015 and POST is a dummy that equals 1 for observations from 2015 on. The sample includes all firms that filed for bankruptcy between 2013 and 2016 and all financially distressed firms, where a firm is considered to be distressed if it has negative equity during two consecutive years. The period of analysis is 2013-2016. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable MICRO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed efffects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	exit	exit	exit	exit
ES*MICRO*POST	0.019***	0.016**	0.017***	0.016**
	(0.006)	(0.007)	(0.007)	(0.007)
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	664,141	368,505	368,259	368,254
R-squared	0.853	0.883	0.884	0.884

Table X10: The impact of the fresh start on the probability of exit by Spanish micro-firms (Z-score<1.1 during two consecutive years)

This table shows the coefficient of the interaction term ES*MICRO*POST in OLS regressions, in which the dependent variable is a dummy that equals 1 if the firm exited the market in a certain year and 0 otherwise. ES is a dummy that equals 1 if the firm is Spanish, MICRO is a dummy that equals 1 if the firm was a micro-firm before the introduction of the fresh start policy in 2015 and POST is a dummy that equals 1 for observations from 2015 on. The sample includes all firms that filed for bankruptcy between 2013 and 2016 and all financially distressed firms, where a firm is considered to be distressed if it has an Altman's Z-score less than 1.1 during two consecutive years and positive debt. The period of analysis is 2013-2016. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable MICRO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed efffects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	exit	exit	exit	exit
ES*MICRO*POST	0.017***	0.020***	0.025***	0.024***
	(0.005)	(0.006)	(0.006)	(0.006)
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	840,265	403,750	403,515	403,508
R-squared	0.860	0.887	0.888	0.888

Table X11: The impact of the fresh start on the probability of exit through bankruptcy by Spanish micro-firms (Interest Coverage Ratio<1 during two consecutive years and at least 5 years old)

This table shows the coefficient of ES*MICRO*POST in OLS regressions in which the dependent variable is a dummy that equals 1 if a firm that was undergoing a bankruptcy procedure exited the market in a certain year and 0 otherwise. ES is a dummy that equals 1 if the firm is Spanish, MICRO is a dummy that equals 1 if the firm was a micro-firm before the introduction of the fresh start policy in 2015 and POST is a dummy that equals 1 for observations from 2015 on. The period of analysis is 2013-2016. The sample includes all firms that filed for bankruptcy between 2013 and 2016 and all financially distressed firms, where a firm is considered to be distressed if its interest coverage ratio is less than 1 during two consecutive years, it is at least 5 years old and has positive debt. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable MICRO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed effects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	exit through bankruptcy	exit through bankruptcy	exit through bankruptcy	exit through bankruptcy
ES*MICRO*POST	0.028***	0.031***	0.026***	0.024***
	(0.005)	(0.006)	(0.006)	(0.007)
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	383,986	138,215	137,433	121,406
R-squared	0.808	0.878	0.885	0.898

Table X12: The impact of the fresh start on the probability of exit through bankruptcy by Spanish micro-firms
(Negative equity during two consecutive years)

This table shows the coefficient of ES*MICRO*POST in OLS regressions in which the dependent variable is a dummy that equals 1 if a firm that was undergoing a bankruptcy procedure exited the market in a certain year and 0 otherwise. ES is a dummy that equals 1 if the firm is Spanish, MICRO is a dummy that equals 1 if the firm was a micro-firm before the introduction of the fresh start policy in 2015 and POST is a dummy that equals 1 for observations from 2015 on. The period of analysis is 2013-2016. The sample includes all firms that filed for bankruptcy between 2013 and 2016 and all financially distressed firms, where a firm is considered to be distressed if it has negative equity during two consecutive years. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable MICRO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed effects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	exit through bankruptcy	exit through bankruptcy	exit through bankruptcy	exit through bankruptcy
ES*MICRO*POST	0.025***	0.022***	0.022***	0.021***
	(0.004)	(0.004)	(0.004)	(0.004)
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	664,138	495,608	495,277	469,865
R-squared	0.811	0.832	0.834	0.848

Table X13: The impact of the fresh start on the probability of exit through bankruptcy by Spanish micro-firms (Altman's Z-score<1.1 during two consecutive years)

This table shows the coefficient of ES*MICRO*POST in OLS regressions in which the dependent variable is a dummy that equals 1 if a firm that was undergoing a bankruptcy procedure exited the market in a certain year and 0 otherwise. ES is a dummy that equals 1 if the firm is Spanish, MICRO is a dummy that equals 1 if the firm was a micro-firm before the introduction of the fresh start policy in 2015 and POST is a dummy that equals 1 for observations from 2015 on. The period of analysis is 2013-2016. The sample includes all firms that filed for bankruptcy between 2013 and 2016 and all financially distressed firms, where a firm is considered to be distressed if it has an Altman's Z-score less than 1.1 during two consecutive years and positive debt. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable MICRO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed effects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	exit through bankruptcy	exit through bankruptcy	exit through bankruptcy	exit through bankruptcy
ES*MICRO*POST	0.024***	0.026***	0.025***	0.024***
	(0.003)	(0.004)	(0.004)	(0.004)
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	840,261	564,503	564,209	536,591
R-squared	0.780	0.809	0.813	0.830

Table X14: The impact of the fresh start on the investment decisions of Spanish micro-firms

This table shows the coefficient of ES*MICRO*POST in OLS regressions in which the dependent variable is the natural log of tangible fixed assets. ES is a dummy that equals 1 if the firm is Spanish, MICRO is a dummy that equals 1 if the firm was a micro-firm before the introduction of the fresh start policy in 2015 and POST is a dummy that equals 1 for observations between 2015 and 2016. Specifications (2), (3), (4) and (5) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public credit and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, liquidity ratio, interest coverage ratio and current ratio. The sample includes all firms that were active between 2013 and 2016, had positive turnover and were not under bankruptcy procedures. The period of analysis is 2013-2016. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable MICRO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed efffects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at the NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	log(capital)	log(capital)	log(capital)	log(capital)
ES*MICRO*POST	0.038***	0.023***	0.030***	0.032***
	(0.005)	(0.005)	(0.005)	(0.006)
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	3,731,369	3,040,894	3,040,805	3,015,407
R-squared	0.950	0.957	0.957	0.959

Table X15: The impact of the fresh start on the employment decisions of Spanish micro-firms

This table shows the coefficient of ES*MICRO*POST in OLS regressions in which the dependent variable is the natural log of total employment plus 1. ES is a dummy that equals 1 if the firm is Spanish, MICRO is a dummy that equals 1 if the firm was a micro-firm before the introduction of the fresh start policy in 2015 and POST is a dummy that equals 1 for observations between 2015 and 2016. Specifications (2), (3), (4) and (5) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public credit and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, liquidity ratio, interest coverage ratio and current ratio. The sample includes all firms that were active between 2013 and 2016, had positive turnover and were not under bankruptcy procedures. The period of analysis is 2013-2016. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable MICRO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed efffects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at the NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	log(employment+1)	log(employment+1)	log(employment+1)	log(employment+1)
ES*MICRO*POST	-0.010***	-0.016***	-0.005*	-0.005
	(0.003)	(0.003)	(0.003)	(0.003)
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	3,732,264	3,042,073	3,041,985	3,016,559
R-squared	0.919	0.929	0.930	0.933

Table X16: The impact of the fresh start on the turnover of Spanish micro-firms

This table shows the coefficient of ES*MICRO*POST in OLS regressions in which the dependent variable is the natural log of real turnover. ES is a dummy that equals 1 if the firm is Spanish, MICRO is a dummy that equals 1 if the firm was a micro-firm before the introduction of the fresh start policy in 2015 and POST is a dummy that equals 1 for observations between 2015 and 2016. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public credit and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, liquidity ratio, interest coverage ratio and current ratio. The sample includes all firms that were active between 2013 and 2016, had positive turnover and were not under bankruptcy procedures. The period of analysis is 2013-2016. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable MICRO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed efffects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at the NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	log(turnover)	log(turnover)	log(turnover)	log(turnover)
ES*MICRO*POST	0.015***	0.015***	0.022***	0.023***
	(0.004)	(0.004)	(0.004)	(0.004)
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	3,731,369	3,040,894	3,040,805	3,015,407
R-squared	0.890	0.922	0.923	0.925

Table X17: The impact of the fresh start on the investment decisions of Spanish micro-firms: breakdown by share of non-dischargeable debt to total debt

This table is equal to Table 14, but restricting the samples to firms a high and a low share of non-dischargeable debt to total debt (Panel A and Panel B, respectively), where "high" means greater than or equal to the median of that variable in each country and "low" means lower than the corresponding median. We proxy a firm's non-dischargeable debt by the sum of its public credit (mainly taxes and social security contributions) and its staff debt (wages and related debt towards its employees).

Panel A: High share of non-dischargeable debt to total debt				
	(1)	(2)	(3)	(4)
VARIABLES	log(capital)	log(capital)	log(capital)	log(capital)
ES*MICRO*POST	0.015	-0.005	0.007	0.008
	(0.010)	(0.010)	(0.011)	(0.012)
Observations	1,680,164	1,374,540	1,374,395	1,345,328
R-squared	0.951	0.957	0.957	0.960
Panel B: Low share of non-dischargeable debt to total debt				
	(1)	(2)	(3)	(4)
VARIABLES	log(capital)	log(capital)	log(capital)	log(capital)
ES*MICRO*POST	0.029***	0.023***	0.028***	0.028***
	(0.006)	(0.006)	(0.006)	(0.007)
Observations	1,763,510	1,507,813	1,507,699	1,479,899
R-squared	0.959	0.964	0.965	0.967
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES

Table X18: The impact of the fresh start on the turnover of Spanish micro-firms: breakdown by share of non-dischargeable debt to total debt

This table is equal to Table 16, but restricting the samples to firms a high and a low share of non-dischargeable debt to total debt (Panel A and Panel B, respectively), where "high" means greater than or equal to the median of that variable in each country and "low" means lower than the corresponding median. We proxy a firm's non-dischargeable debt by the sum of its public credit (mainly taxes and social security contributions) and its staff debt (wages and related debt towards its employees).

Panel A: High share of non-dischargeable debt to total debt				
	(1)	(2)	(3)	(4)
VARIABLES	log(turnover)	log(turnover)	log(turnover)	log(turnover)
ES*MICRO*POST	0.006	-0.010	-0.002	0.004
	(0.008)	(0.007)	(0.008)	(0.008)
Observations	1,680,164	1,374,540	1,374,395	1,345,328
R-squared	0.868	0.901	0.902	0.908
Panel B: Low share of non-dischargeable debt to total debt				
	(1)	(2)	(3)	(4)
VARIABLES	log(turnover)	log(turnover)	log(turnover)	log(turnover)
ES*MICRO*POST	0.029***	0.038***	0.036***	0.036***
	(0.005)	(0.004)	(0.005)	(0.005)
Observations	1,763,510	1,507,813	1,507,699	1,479,899
R-squared	0.912	0.936	0.936	0.940
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES

Table X19: The impact of the fresh start on the probability of entry by Spanish micro-firms

This table shows the coefficients of the interaction term ES*MICRO*POST in OLS regressions, in which the dependent variable is a dummy that equals 1 in the year in which the firm entered the market and 0 otherwise. ES is a dummy that equals 1 if the firm is Spanish, MICRO is a dummy that equals 1 if the firm is a micro-firm in the first year it is observed in the sample and POST is a dummy that equals 1 betwen 2015 and 2016. The period of analysis is 2013-2016. The sample includes all firms that were active between 2013 and 2016, had positive turnover and were not under bankruptcy proceedings. Specifications (2), (3) and (4) include the following firm controls: size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable MICRO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed effects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	entry	entry	entry	entry
ES*MICRO*POST	0.017***	0.018***	0.018***	0.018***
	(0.001)	(0.001)	(0.001)	(0.001)
Firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	3,730,968	3,625,148	3,625,069	3,599,920
R-squared	0.392	0.415	0.419	0.440

Table X20: The impact of the fresh start on the probability of entry by Spanish micro-firms
Subsamples of intensity in intangible assets

This table is equal to Table 19, but restricting the sample to firms with low intensity in intangible assets in column (1) and firms with high intensity in intangible assets in column (2). Firms with low (high) intensity in intangible assets are those with a share of intangible assets to total assets below (above) the 90th percentile of the distribution for each industry and country in the period 2013-2016. Industry is measured at a 4-digit level.

	(1)	(2)
SUBSAMPLES	Firms with low intensity in intangible assets	Firms with high intensity in intangible assets
VARIABLES	entry	entry
ES*MICRO*POST	0.018***	0.020***
	(0.001)	(0.001)
Unconditional probability	3.4%	2.7%
Firm controls	YES	YES
Firm fixed effects	YES	YES
Time-varying group effects	YES	YES
Region-industry-time fixed effects	YES	YES
Observations	2,280,697	1,231,282
R-squared	0.449	0.446

Table X21: The impact of the fresh start on the probability of entry by Spanish micro-firms
Subsamples of sectors' productivity

This table is equal to Table 19, but restricting the sample to low-productivity sectors in (1), medium-productivity sectors in (2) and high-productivity sectors in (3), as measured by their average TFP in the period 2013-2016. Low-productivity sectors: B.Mining and quarrying; Q.Health and social work; P.Education; R.Arts, entertainment and recreation; S.Other service activities; F.Construction. Medium-productivity sectors: D.Electricity, gas, steam and air conditioning supply; E.Water supply; sewerage; waste management and remediation activities; I.Accommodation and food service activities; H.Transportation and storage; M.Professional, scientific and technical activities; N.Administrative and support service activities. High-productivity sectors: G.Wholesale and retail trade; repair of motor vehicles and motorcycles; J.Information and communication; L.Real estate activities; C.Total manufacturing; A.Agriculture, forestry and fishing. NACE rev. 4 classification.

	(1)	(2)	(3)
SUBSAMPLES	Low-productivity sectors	Medium-productivity sectors	High-productivity sectors
VARIABLES	entry	entry	entry
ES*MICRO*POST	0.016***	0.014***	0.021***
	(0.002)	(0.002)	(0.001)
Unconditional probability	3.1%	3.4%	2.9%
Firm controls	YES	YES	YES
Firm fixed effects	YES	YES	YES
Time-varying group effects	YES	YES	YES
Region-industry-time fixed effects	YES	YES	YES
Observations	792,666	1,000,168	1,774,662
R-squared	0.435	0.435	0.447

Fresh start policies and small business activity: evidence from a natural experiment

ONLINE APPENDIX

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A.1 The impact of the fresh start on bankruptcy filings by distressed micro-firms in Spain: less strict criteria to define financially distressed firms

Financially distressed firms are: (i) firms with ICR<1 and at least 5 years old; (ii) firms with negative equity; (iii) firms with an Altman's Z-score lower than 1.1.

Table A1: The impact of the fresh start on the probability of bankruptcy filings by Spanish micro-firms (Interest Coverage Ratio<1 and at least 5 years old)

This table shows the coefficient of ES*MICRO*POST in OLS regressions in which the dependent variable is a dummy that equals 1 if the firm filed for bankruptcy between 2013 and 2016. ES is a dummy that equals 1 if the firm is Spanish, MICRO is a dummy that equals 1 if the firm was a micro-firm before the introduction of the fresh start policy in 2015 and POST is a dummy that equals 1 for observations from 2015 on. The period of analysis is 2013-2016. The sample includes all firms that filed for bankruptcy between 2013 and 2016 and all financially distressed firms, where a firm is considered to be distressed if its interest coverage ratio is less than 1, it is at least 5 years old and has positive debt. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable MICRO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed effects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

VARIABLES	(1) bankruptcy filing	(2) bankruptcy filing	(3) bankruptcy filing	(4) bankruptcy filing
ES*MICRO*POST	0.041***	0.047***	0.045***	0.041***
	(0.004)	(0.007)	(0.007)	(0.007)
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	852,399	357,381	356,885	330,152
R-squared	0.388	0.389	0.407	0.477

Table A2: The impact of the fresh start on the probability of bankruptcy filings by Spanish micro-firms (Negative equity)

This table shows the coefficient of ES*MICRO*POST in OLS regressions in which the dependent variable is a dummy that equals 1 if the firm filed for bankruptcy between 2013 and 2016. ES is a dummy that equals 1 if the firm is Spanish, MICRO is a dummy that equals 1 if the firm was a micro-firm before the introduction of the fresh start policy in 2015 and POST is a dummy that equals 1 for observations from 2015 on. The period of analysis is 2013-2016. The sample includes all firms that filed for bankruptcy between 2013 and 2016 and all financially distressed firms, where a firm is considered to be distressed if it has negative equity. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable MICRO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed effects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	bankruptcy filing	bankruptcy filing	bankruptcy filing	bankruptcy filing
ES*MICRO*POST	0.043***	0.030***	0.029***	0.029***
	(0.004)	(0.004)	(0.004)	(0.004)
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	892,512	656,767	656,491	629,665
R-squared	0.390	0.383	0.391	0.442

Table A3: The impact of the fresh start on the probability of bankruptcy filings by Spanish micro-firms (Altman's Z-score<1.1)

This table shows the coefficient of ES*MICRO*POST in OLS regressions in which the dependent variable is a dummy that equals 1 if the firm filed for bankruptcy between 2013 and 2016. ES is a dummy that equals 1 if the firm is Spanish, MICRO is a dummy that equals 1 if the firm was a micro-firm before the introduction of the fresh start policy in 2015 and POST is a dummy that equals 1 for observations from 2015 on. The period of analysis is 2013-2016. The sample includes all firms that filed for bankruptcy between 2013 and 2016 and all financially distressed firms, where a firm is considered to be distressed if it has an Altman's Z-score less than 1.1 and positive debt. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable MICRO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed effects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	bankruptcy filing	bankruptcy filing	bankruptcy filing	bankruptcy filing
ES*MICRO*POST	0.037***	0.036***	0.034***	0.033***
	(0.003)	(0.004)	(0.004)	(0.005)
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	1,382,379	832,476	832,250	802,500
R-squared	0.383	0.386	0.394	0.446

A.1.2 Assuming that the treatment group only comprises firms with zero employees

In this robustness test we assume than firms with zero employees, rather than all micro-firms, comprise the treatment group, as they are the most likely beneficiaries of a debt discharge in personal bankruptcy. The methodology is the same as in the baseline analyses, but we replace the dummy variable *micro* with the dummy *zero*, which equals 1 if the firm had zero employees before the introduction of the fresh start policy in 2015.

Table A4: The impact of the fresh start on the probability of bankruptcy filings by Spanish firms with zero employees (Interest Coverage Ratio<1 during two consecutive years and at least 5 years old)

This table shows the coefficient of ES*ZERO*POST in OLS regressions in which the dependent variable is a dummy that equals 1 if the firm filed for bankruptcy between 2013 and 2016. ES is a dummy that equals 1 if the firm is Spanish, ZERO is a dummy that equals 1 if the firm had zero employees before the introduction of the fresh start policy in 2015 and POST is a dummy that equals 1 for observations from 2015 on. The period of analysis is 2013-2016. The sample includes all firms that filed for bankruptcy between 2013 and 2016 and all financially distressed firms, where a firm is considered to be distressed if its interest coverage ratio is less than 1 during two consecutive years, it is at least 5 years old and has positive debt. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable ZERO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed efffects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	bankruptcy filing	bankruptcy filing	bankruptcy filing	bankruptcy filing
ES*ZERO*POST	0.018***	0.015***	0.014***	0.014***
	(0.003)	(0.004)	(0.004)	(0.005)
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	383,986	138,215	137,433	121,406
R-squared	0.397	0.419	0.447	0.525

Table A5: The impact of the fresh start on the probability of bankruptcy filings by Spanish firms with zero employees (Negative equity during two consecutive years)

This table shows the coefficient of ES*ZERO*POST in OLS regressions in which the dependent variable is a dummy that equals 1 if the firm filed for bankruptcy between 2013 and 2016. ES is a dummy that equals 1 if the firm is Spanish, ZERO is a dummy that equals 1 if the firm had zero employees before the introduction of the fresh start policy in 2015 and POST is a dummy that equals 1 for observations from 2015 on. The period of analysis is 2013-2016. The sample includes all firms that filed for bankruptcy between 2013 and 2016 and all financially distressed firms, where a firm is considered to be distressed if it has negative equity during two consecutive years. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable ZERO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed efffects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	bankruptcy filing	bankruptcy filing	bankruptcy filing	bankruptcy filing
ES*ZERO*POST	0.004***	0.004***	0.005***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	664,138	368,506	367,989	348,282
R-squared	0.394	0.419	0.429	0.480

Table A6: The impact of the fresh start on the probability of bankruptcy filings by Spanish firms with zero employees (Altman's Z-score<1.1 during two consecutive years)

This table shows the coefficient of ES*ZERO*POST in OLS regressions in which the dependent variable is a dummy that equals 1 if the firm filed for bankruptcy between 2013 and 2016. ES is a dummy that equals 1 if the firm is Spanish, ZERO is a dummy that equals 1 if the firm had zero employees before the introduction of the fresh start policy in 2015 and POST is a dummy that equals 1 for observations from 2015 on. The period of analysis is 2013-2016. The sample includes all firms that filed for bankruptcy between 2013 and 2016 and all financially distressed firms, where a firm is considered to be distressed if it has an Altman's Z-score less than 1.1 during two consecutive years and positive debt. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable ZERO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed efffects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	bankruptcy filing	bankruptcy filing	bankruptcy filing	bankruptcy filing
ES*ZERO*POST	0.007***	0.006***	0.007***	0.006***
	(0.001)	(0.001)	(0.001)	(0.001)
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	840,261	403,751	403,236	382,210
R-squared	0.392	0.423	0.433	0.488

A.1.3 Assuming a continuous treatment

We implement a DDD estimator with a continuous treatment effect, by making use of the lagged variable *size* (log of total assets):

$$bankruptcy_{ict} = \alpha_i + d_{rit} + \beta' x_{it-1} + \delta_1 post_t \cdot size_{t-1} + \delta_2 es_c \cdot size_{t-1} + \\ + \boldsymbol{\delta_3} post_t \cdot size_{t-1} \cdot es_c + \varepsilon_{ict} \quad (3)$$

where all variables and fixed effects have been explained in Section 4 and the coefficient the interest is δ_3. We conjecture that $\delta_3 < 0$ because owners of smaller firms are more likely to pledge personal guarantees and, consequently, more likely to file for bankruptcy to obtain a debt discharge in the event of financial distress.

Table A7: The impact of the fresh start on the probability of bankruptcy filings (continuous treatment) (Interest Coverage Ratio<1 during two consecutive years and at least 5 years old)

This table shows the coefficient of the interaction term ES*SIZE(t-1)*POST in OLS regressions in which the dependent variable is a dummy that equals 1 if the firm filed for bankruptcy between 2013 and 2016. ES is a dummy that equals 1 if the firm is Spanish, SIZE(t-1) is lagged total assets and POST is a dummy that equals 1 for observations from 2015 on. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. The sample includes all firms that filed for bankruptcy between 2013 and 2016 and all financially distressed firms, where a firm is considered to be distressed if its interest coverage ratio is less than 1 during two consecutive years, it is at least 5 years old and has positive debt. All specifications include firm fixed effects, while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed efffects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). All specifications also include the interaction terms ES*SIZE(t-1) and SIZE(t-1)*POST. Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	bankruptcy filing	bankruptcy filing	bankruptcy filing	bankruptcy filing
ES*SIZE(t-1)*POST	-0.004***	-0.005***	-0.006***	-0.005***
	(0.001)	(0.001)	(0.001)	(0.001)
ES*SIZE(t-1)	YES	YES	YES	YES
SIZE(t-1)*POST	YES	YES	YES	YES
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	205,033	205,033	204,382	182,529
R-squared	0.385	0.387	0.414	0.495

Table A8: The impact of the fresh start on the probability of bankruptcy filings (continuous treatment) (Negative equity during two consecutive years)

This table shows the coefficient of the interaction term ES*SIZE(t-1)*POST in OLS regressions in which the dependent variable is a dummy that equals 1 if the firm filed for bankruptcy between 2013 and 2016. ES is a dummy that equals 1 if the firm is Spanish, SIZE(t-1) is lagged total assets and POST is a dummy that equals 1 for observations from 2015 on. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. The sample includes all firms that filed for bankruptcy between 2013 and 2016 and all financially distressed firms, where a firm is considered to be distressed if it has negative equity during two consecutive years. All specifications include firm fixed effects, while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed efffects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). All specifications also include the interaction terms ES*SIZE(t-1) and SIZE(t-1)*POST. Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

VARIABLES	(1) bankruptcy filing	(2) bankruptcy filing	(3) bankruptcy filing	(4) bankruptcy filing
ES*SIZE(t-1)*POST	-0.002***	-0.003***	-0.003***	-0.003***
	(0.000)	(0.000)	(0.000)	(0.000)
ES*SIZE(t-1)	YES	YES	YES	YES
SIZE(t-1)*POST	YES	YES	YES	YES
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	495,608	495,608	495,277	469,865
R-squared	0.379	0.380	0.390	0.443

Table A9: The impact of the fresh start on the probability of bankruptcy filings (continuous treatment) (Z-score<1.1 during two consecutive years)

This table shows the coefficient of the interaction term ES*SIZE(t-1)*POST in OLS regressions in which the dependent variable is a dummy that equals 1 if the firm filed for bankruptcy between 2013 and 2016. ES is a dummy that equals 1 if the firm is Spanish, SIZE(t-1) is lagged total assets and POST is a dummy that equals 1 for observations from 2015 on. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. The sample includes all firms that filed for bankruptcy between 2013 and 2016 and all financially distressed firms, where a firm is considered to be distressed if it has an Altman's Z-score less than 1.1 during two consecutive years and positive debt. All specifications include firm fixed effects, while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed effects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). All specifications also include the interaction terms ES*SIZE(t-1) and SIZE(t-1)*POST. Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	bankruptcy filing	bankruptcy filing	bankruptcy filing	bankruptcy filing
ES*SIZE(t-1)*POST	-0.003***	-0.003***	-0.004***	-0.003***
	(0.000)	(0.000)	(0.000)	(0.000)
ES*SIZE(t-1)	YES	YES	YES	YES
SIZE(t-1)*POST	YES	YES	YES	YES
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	564,503	564,503	564,209	536,591
R-squared	0.387	0.388	0.399	0.458

A.1.3 Using the full sample of firms

In this robustness test we run the same regression models but using the full sample of firms, i.e., both solvent and financially distressed companies.

Table A10: The impact of the fresh start on the probability of bankruptcy filings by Spanish micro-firms (Full sample of firms)

This table shows the coefficient of ES*MICRO*POST in OLS regressions in which the dependent variable is a dummy that equals 1 if the firm filed for bankruptcy between 2013 and 2016. ES is a dummy that equals 1 if the firm is Spanish, MICRO is a dummy that equals 1 if the firm was a micro-firm before the introduction of the fresh start policy in 2015 and POST is a dummy that equals 1 for observations from 2015 on. The period of analysis is 2013-2016. The sample includes all firms in the sample, both solvent and financially distressed companies. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable MICRO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed effects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

VARIABLES	(1) bankruptcy filing	(2) bankruptcy filing	(3) bankruptcy filing	(4) bankruptcy filing
ES*MICRO*POST	0.006***	0.006***	0.005***	0.005***
	(0.001)	(0.001)	(0.001)	(0.001)
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	4,832,956	3,905,998	3,905,923	3,880,869
R-squared	0.348	0.352	0.354	0.377

A2. The impact of the fresh start on exits by distressed micro-firms in Spain: less strict criteria to define financially distressed firms

Table A11: The impact of the fresh start on the probability of exit by Spanish micro-firms (Interest Coverage Ratio<1 and at least 5 years old)

This table shows the coefficient of ES*MICRO*POST in OLS regressions in which the dependent variable is a dummy that equals 1 if the firm exited the market in a certain year and 0 otherwise. ES is a dummy that equals 1 if the firm is Spanish, MICRO is a dummy that equals 1 if the firm was a micro-firm before the introduction of the fresh start policy in 2015 and POST is a dummy that equals 1 for observations from 2015 on. The sample includes all firms that filed for bankruptcy between 2013 and 2016 and all financially distressed firms, where a firm is considered to be distressed if its interest coverage ratio is less than 1, it is at least 5 years old and has positive debt. The period of analysis is 2013-2016. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable MICRO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed effects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	exit	exit	exit	exit
ES*MICRO*POST	0.014***	0.016**	0.018***	0.017**
	(0.004)	(0.006)	(0.007)	(0.007)
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	852,399	357,381	357,250	357,250
R-squared	0.867	0.873	0.874	0.874

Table A12: The impact of the fresh start on the probability of exit by Spanish micro-firms (Negative equity)

This table shows the coefficient of ES*MICRO*POST in OLS regressions in which the dependent variable is a dummy that equals 1 if the firm exited the market in a certain year and 0 otherwise. ES is a dummy that equals 1 if the firm is Spanish, MICRO is a dummy that equals 1 if the firm was a micro-firm before the introduction of the fresh start policy in 2015 and POST is a dummy that equals 1 for observations from 2015 on. The sample includes all firms that filed for bankruptcy between 2013 and 2016 and all financially distressed firms, where a firm is considered to be distressed if it has negative equity. The period of analysis is 2013-2016. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable MICRO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed effects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	exit	exit	exit	exit
ES*MICRO*POST	0.021***	0.013**	0.015***	0.015***
	(0.005)	(0.006)	(0.006)	(0.006)
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	892,512	656,767	656,687	656,687
R-squared	0.837	0.855	0.856	0.856

Table A13: The impact of the fresh start on the probability of exit by Spanish micro-firms (Altman's Z-score<1.1)

This table shows the coefficient of ES*MICRO*POST in OLS regressions in which the dependent variable is a dummy that equals 1 if the firm exited the market in a certain year and 0 otherwise. ES is a dummy that equals 1 if the firm is Spanish, MICRO is a dummy that equals 1 if the firm was a micro-firm before the introduction of the fresh start policy in 2015 and POST is a dummy that equals 1 for observations from 2015 on. The sample includes all firms that filed for bankruptcy between 2013 and 2016 and all financially distressed firms, where a firm is considered to be distressed if it has an Altman's Z-score less than 1.1 and positive debt. The period of analysis is 2013-2016. Specifications (2), (3) and (4) include the following lagged firm controls: age (in logs), size (log of total assets), return on assets (ROA), total leverage, financial leverage, the share of public debt and staff debt on the company's total debt, a dummy that equals 1 if the firm has negative equity, tangibility, liquidity ratio, interest coverage ratio and current ratio. All specifications include firm fixed effects and time-varying group effects (i.e., a full set of dummies computed by interacting the variable MICRO with each time period), while the bottom of the table shows whether country-time fixed effects, country-industry-time fixed effects or region-industry-time fixed effects have been included. Industry is measured at a 4-digit level and region at NUTS-3 level (e.g. provinces in Spain). Robust standard errors in parenthesis are clustered at the firm-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	exit	exit	exit	exit
ES*MICRO*POST	0.021***	0.016***	0.020***	0.019***
	(0.004)	(0.005)	(0.005)	(0.005)
Lagged firm controls	NO	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Time-varying group effects	YES	YES	YES	YES
Country-time fixed effects	YES	YES	NO	NO
Country-industry-time fixed effects	NO	NO	YES	NO
Region-industry-time fixed effects	NO	NO	NO	YES
Observations	1,382,379	832,476	832,422	832,422
R-squared	0.843	0.862	0.863	0.863