Marco Ghitti

Bankruptcy

Law Enforcement and Bank Credit

Marco Ghitti

Bankruptcy
Law Enforcement and Bank Credit

PADOVA **UP**

To Elio and Rosi

In the memory of Franco and Giovanna,
Giovanni and Amelia

Table of Contents

1. Introduction

Does a lender's response to an exogenous change in creditor rights differ as a function of judicial efficiency? Specifically, are small and medium entities' credit conditions affected by the way in which bankruptcy proceedings are enforced, even for firms not in financial distress?

Economists and policymakers agree that financial frictions are a major barrier to investment and thus to economic growth. Law and finance scholars focus on the idea that investor protection is one relevant source of financial friction (La Porta, et al., 1998). Bankruptcy Law is the main institution that matters for protection of creditors and weak protection of creditor rights in bankruptcy is one important source of financial frictions (Djankov, et al., 2007). Literature underlines the importance to separate the effects of the Law itself from the quality of law enforcement (Djankov, et al., 2003): indeed, one explanation of the empirical association between law and finance resides in the enforcement risk (Gennaioli, 2013). In the case of credits, this implies that looking only at the Bankruptcy Law is not enough, but we should also refer to the way courts effectively implement it, in order to observe how creditor rights are actually enforced in the real world. The judicial efficiency becomes thus crucial to investigate to what degree the quality of law enforcement affects the credit market (Jappelli, et al., 2005). When a new Bankruptcy Law is endorsed, the efficiency

of local courts is a key determinant of the ability of both creditors and firms to reap eventual benefits of the legislative reform.

This book addresses empirically the two aforementioned questions exploiting the timing of three bankruptcy law reforms in Italy, enacted between 2010 and 2013, which change substantially the creditor rights for lenders to Small and Medium Enterprises (henceforth, also "SMEs"). To this end, the work takes advantage of a novel and unique proprietary dataset of bank credits towards SMEs, which collect information at *single* credit level. We focus the attention on court enforcement of Bankruptcy Law and study the effects of the time needed by courts to deal with bankruptcy cases.

In Italy, judicial districts are highly heterogeneous in terms of efficiency: in the least efficient district average duration of a bankruptcy case may be up to 6.8 times longer than in the most efficient district. Crucially, in Italy specialized courts oversee bankruptcy cases, which permits to focus on efficiency of such courts rather than on the justice system as a whole. Finally, Italian Law does not allow firms or creditors to choose the district in which to file a bankruptcy case, nor a firm can strategically relocate during the 12 months before the filing. Thanks to this national environment, we adopt a strategy that compares credit conditions that the same bank applies to firms located in different judicial districts, assuming that heterogeneity in effectiveness of courts is an exogenous fact when regulators introduce a new bankruptcy law reform.

In many European countries, the debate about Bankruptcy Law has been very alive during the last fifteen years, even because there is no common European process for corporate defaults, despite the monetary union. In Italy, particularly, an impressive rise of new bankruptcy proceedings has also boosted the debate. New in-court cases (Liquidation and Reorganization) almost triple from a minimum of 6,680 in 2007 to a maximum of 19,694 in 2013. Between 2005 and 2015, Regulators have intervened 18 times to modify the Italian Bankruptcy Law (*Regio Decreto* n. 267/1942, henceforth also "*B.L.*"), by introducing seven main reforms of bankruptcy proceeding for SMEs. The primary aim of the reforms has been to facilitate debt renegotiation and ultimately to better credit market conditions, in terms of pricing, volumes and collaterals. Yet, this work provides evidence that *ex-post* outcomes may conflict with *ex-ante* policy aims; besides, the

effect of the same reform may vary substantially across judicial districts, due to an exogenous difference of court efficiency.

The contribution to the literature stems from three main features of the work:

(i)   *within country perspective*: Italy has been seeing several interventions to the Bankruptcy Law since 2005 and present peculiar characteristics of the judicial system (specialized courts, heterogeneity in judicial efficiency, no "court-shopping"). This allows to adopt a *within country* perspective to investigate the effects of the reforms and to distinguish such effects according to the exogenous variation of the court efficiency across judicial districts. Such a perspective permits to hold constant other institutional settings that might also impact the design of financial contracts. Moreover, all the three reforms being analysed (2010, 2012, and 2013) come after the Great Recession.

(ii)   *Bank credit to SMEs*: empirics focus on bank credit to SMEs, which constitutes the bulk of credit market in Italy. Italian economy is primarily made of SMEs, which rely the most on external finance: 99.9% of firms has less than 250 employees, account for 80.3% of the work force and 69.0% of value added at national level (Table I). Hence, the study of the Italian credit market cannot avoid focusing on bank credit to SMEs, and this is similar to many other advanced economies whose legal framework originates from the Civil Law tradition.

(iii) *Unique proprietary database*: one of the biggest Italian banks (henceforth, also the "Bank") contributes to the research by providing a unique dataset focused on credits to SMEs. Credit information is collected at *single* credit level with more than 6.4 million credit times quarter observations. The micro-level analysis represents a key contribution to the literature, and allows to present novel results both on pricing and non-price terms of financial contracts.

Table I – Structural composition of enterprises in Italy

Size class of people employed	Number of enterprises		Production value		Value added at factor cost		Number of people employed	
	%	*Cum. %*	*%*	*Cum. %*	*%*	*Cum. %*	*%*	*Cum. %*
0-9	95.28%	95.28%	25.33%	25.33%	30.60%	30.60%	47.45%	47.45%
10-19	2.97%	98.25%	10.05%	35.38%	10.25%	40.85%	10.60%	58.05%
20-49	1.18%	99.44%	11.56%	46.94%	10.96%	51.81%	9.53%	67.58%
50-249	0.49%	99.92%	19.41%	66.35%	17.19%	69.00%	12.75%	80.33%
250 and over	0.08%	100.00%	33.65%	100.00%	31.00%	100.00%	19.67%	100.00%

The table reports Italian National Institute of Statistic (ISTAT) figures for non-financial SMEs segmented by size class of employees as of 2013. % is the percentage of the overall sample of non-financial SMEs; *Cum. %* represents the cumulative percentage, up to a given size class, of the overall sample of non-financial SMEs. *Number of enterprises* is ISTAT variable n. 11110; *Production value* is ISTAT variable n. 12120; *Value Added at factor cost* is ISTAT variable n. 12150; *Number of people employed* is ISTAT variable n. 16110. Data extracted on 2 February 2016 08:02 UTC (GMT) from I.Stat.

The empirical strategy uses a difference-in-differences methodology (henceforth, also "*DID*"): we exploit the impact of Italian B.L. reforms on creditor rights as an exogenous source of time variation, while the efficiency of courts across judicial districts as a source of cross-sectional variation. Judicial efficiency is a key determinant of differential exposure of SMEs to the reforms: theoretical prediction, indeed, is that bank financing conditions for firms operating in less efficient judicial districts should be more responsive to the features of bankruptcy proceedings.

The identification of the specific effects that each change in the B.L. has on creditor rights is a crucial starting point of this work; actually, each reform may have different implications on creditor rights. We examine 17 measures of creditor rights studied in the literature and construct a new Creditor Rights Index (henceforth, also "*CRI*") based on such measures: CRI identifies whether a reform increases or decreases creditor rights, and to what extent. The original creditor rights index relies on four rights (La Porta, et al., 1998), but this is not enough because there are many additional rights influencing creditors' choices. In our case, were the CRI based only on four rights we would not capture any effect linked to the three reforms being analysed. CRI spans across all the bankruptcy proceedings available for SMEs, because a lender, when evaluating a credit application from a borrower, considers all the possible proceedings the latter might face. Conversely, previous studies focus on the two main proceedings:

reorganization and liquidation (La Porta, et al., 1998; Rodano, et al., 2016). Lastly, we relate the change in CRI to SME's financing conditions and confirm results of previous studies: CRI is positively related with volumes of credit and negatively associated with interest rates, also after controlling for heterogeneity in court efficiency.

We find that a bankruptcy law reform reducing CRI induces a substantial drop in volumes of credit provided by a lender. The reduction is not the same across borrowers, but it is more pronounced for firms operating in less efficient judicial districts. For instance, following a unitary reduction of CRI, the average recoverable amount at default toward a firm whose court is less efficient to resolve a filing for Liquidation suffers a greater contraction of 1.5% relative to a similar credit to a firm whose judicial district takes one quarter less to examine the filing itself. Such a reduction corresponds to a magnitude of billions of Euro at an aggregate level, being thus economically relevant. Moreover, the differential impact of a reform driven by judicial efficiency is not constant across credits, but it is larger for riskier and unsecured ones.

In term of pricing, results show that a bankruptcy law reform reducing CRI causes a differential increase of interest rate spreads, amplified by judicial (in)efficiency. For example, if CRI shrinks by one, firms operating under a less efficient court see a differential increase of 0.8 bps for every additional quarter taken by their court to assess a filing for Liquidation relative to the average 2001-2009 time taken by the other courts to resolve a filing. At a national level, such an increase corresponds to hundreds of millions of Euro, paid yearly by firms as additional interest expenses. Besides, the differential impact of a reform linked to judicial efficiency is not similar across credits, but it is greater for riskier, unsecured, and recently issued facilities.

The book is organized as follows. Chapter 2 summarizes the theoretical framework in which the work is nested. Chapter 3 describes the institutional framework, related to Bankruptcy Law and its reforms (§ 3.1), heterogeneity of courts' efficiency (§ 3.2), and Creditor Rights Index (§ 3.3). Chapter 4 presents the empirical framework and results, describing the data (§ 4.1), the identification strategy (§ 4.2), the econometric specification (§ 4.3), the main results (§ 4.4), the focus on individual reforms (§ 4.5), and the robustness checks (§ 4.6). Chapter 5 concludes.

2. Theoretical Framework

Literature has studied the influence of legal framework on Corporate Finance in the light of the breach of three assumptions underlying Modigliani and Miller's milestone paper (Modigliani & Miller, 1958). First, the existence of bankruptcy that prevents investors from replicating the financing and dividend policy of the firms; nominal interest rates thus increase with the probability of default (Stiglitz, 1969) and the value of the firm is affected by costs arising with bankruptcy (White, 1996; Bris, et al., 2006). Second, imperfect information affects the equilibrium of loan market, because a bank maximises profit at a point where there is an excess demand of credit: this causes credit rationing (Stiglitz & Weiss, 1981). Third, when looking at investor power, a change in the capital structure of a firm modifies the allocation of power between insiders and outsiders, and thus most likely affects the firm's investment policy (Hart, 1995). The results of our work stem from the breach of these assumptions, because the analysis focuses on bankruptcy law and how it affects investor power (i.e., creditor rights), finding that we may observe credit rationing following a reduction in creditor rights.

Countries have historically developed different legal systems, featuring various degrees of protection of investors, amongst which creditors (La Porta et. al., 1998, henceforth "*LLVS*"). Yet, countries with similar legal framework may enforce rules to a varying extent, and even within the same country the effectiveness of enforcement can

vary a lot. On such premises, from LLVS an extensive literature in law and finance has documented how both legal protection of creditors and the quality of law enforcement are key determinants of financial development (Djankov, et al., 2003; Safavian & Sharma, 2007; La Porta, et al., 2008). Our results are consistent with the predictions of the law and finance literature; they suggest that credits towards firms located in districts with less efficient courts (and thus weaker enforcement) experience a larger decrease in volume and a stronger increase in interest rates following a reform reducing creditor rights.

Many papers on the effect of the legal system on credit market have adopted a cross-country perspective (Djankov, et al., 2007; Davidenko & Franks, 2008; Favara, et al., 2017). We tackle the issue differently, by using a within country perspective which allows to isolate the effects of legal creditor protection from other institutional features, including the functioning of trials. Some other studies have adopted a within country approach to examine the relationship between creditor rights and credit markets. Some studies are focused on developing markets (Visaria, 2009; Chemin, 2012; Vig, 2013), while we focus on a developed country. Other research examines the relationship between financial contracts and law enforcement in developed countries (Jappelli, et al., 2005), but they do not use micro-level data and are not focused on innovations in Bankruptcy Law, pointing rather at changes in the judicial system. The variation in courts enforcement, although in a developing country, has been used with a different aim to study its impact on firms' productivity and credit access (Ponticelli, 2013). This work is indeed related to few studies about the effects of judicial efficiency on bankruptcy law enforcement in Italy (Giacomelli, et al., 2013; Rodano, et al., 2014). However, relative to them, our work takes advantage of a novel and extensive dataset, which allows to disentangle many credit-specific features (collateral, performing/non-performing status, …), and investigates three recent reforms introduced after the Great Recession.

Literature on the judicial system's role in shaping bankruptcy outcomes is extensive and main findings may be summarized as follows. When laws leave a wide range of possible interpretations to judges, courts' enforcement can lead to different outcomes in similar firing cases even if made under the same national laws (Ichino, et al., 2003). There are potential negative results of judicial discretion when judges are not trained or do not have the experience required to run a bank-

ruptcy proceeding (Ayotte & Yun, 2009). Anyway, judicial discretion can lead to an efficient resolution of financial distress, but only in a reorganization framework that offers strong protection to creditors (Gennaioli & Rossi, 2010). All the previous results are modelled to show that if states of the world (i.e. return of a project) are not easily verifiable by judges, courts' verification causes enforcement risk in financial transactions (Gennaioli, 2013).

This literature framework generates the consequent predictions: (i) bankruptcy law reforms that weaken creditor rights should decrease the volume of available bank credit, causing credit rationing, and the reductions should be stronger in the less efficient judicial district (Jappelli, et al., 2005); (ii) reforms that facilitate renegotiation of outstanding credits should weaken debtor's incentives to repay and thus increase the cost of bank financing, and the effects should be more pronounced in less efficient judicial districts (Rodano, et al., 2014). The empirical results of the work are consistent with these theoretical predictions and support the hypothesis that each single reform has peculiar effects on the credit market, because it affects differently creditor rights. More interestingly, the effects of a change in creditor rights vary across SMEs: debtors operating in a less efficient judicial district reflect most the consequences of a reform. In addition, different kind of credits experience distinctively the impacts of a reform and of its enforcement. For instance, following a reform, we report that unsecured credits suffer a larger contraction of volumes and a stronger increase of lending rates and, most importantly, unsecured credits to borrowers operating in less efficient judicial districts suffer even further. Similar outcomes apply to riskier credits.

These findings are related to the literature on creditor rights protection and investment in innovative activity (Acharya & Subramanian, 2009; Acharya, et al., 2011). Moreover, they can be linked to recent work arguing that outcomes of legal enforcement can be different across borrowers when the supply of credit is inelastic (Lilienfeld-Toal, et al., 2012). Finally, results are relevant for the relationship between bank lending and transmission of monetary policy (Ippolito, et al., 2013).

3. Institutional Framework

3.1 Bankruptcy Law and bankruptcy proceedings in Italy

The Bankruptcy Law that disciplined proceedings available for SMEs in Italy is the R.D. n. 267/1942. Since 2005, there are four main proceedings applicable to SMEs[1]:

(i) Private foreclosure – PF (*art. 67 B.L.*): a one-to-one debt renegotiation based on "*a program that appears suitable to allow the restructuring of the company's debt and to ensure the rectification of its financial position*" (Vietti, et al., 2014);

(ii) Foreclosure endorsed by the Court – FC (*art. 182-bis B.L.*): a one-to-one debt restructuring plan which requires creditors holding at least 60% of the overall debt face value to agree, in order to be enforced. If such a percentage is achieved, the court can enforce the restructuring plan, which makes it bind-

---

[1] There are three additional bankruptcy proceedings disciplined by the Italian law: *Amministrazione Straordinaria* (D.Lgs. 270/99), *Amministrazione Straordinaria Speciale* (D.L. 347/2003 and L. 39/2004), and *Liquidazione Coatta Amministrativa* (Art. 194 and subsequent from the B.L.). The first two proceedings are designed for big firms, having at least 200 and 500 employees, respectively; the latter is available only for firms whose possible default is of public interest, such as banks and insurance companies. Therefore, such proceedings are out of the scope of this book. A new bankruptcy law "Codice della Crisi" has been enacted in July 2022. This new law resembles the latest version of the Bankruptcy Law and it is beyond the scope of this work.

ing for the agreeing creditors and ensures a moratorium by imposing a temporary automatic stay to not-agreeing creditors;

(iii)   Reorganization – R (*Concordato Preventivo*): a collective reorganization plan triggered by the debtor and run under supervision of a court, which aims either to continue or to liquidate the firm. Reorganization is equivalent to Chapter 11 in the U.S. legal system;

(iv)   Liquidation – L (*Fallimento*): a collective liquidation procedure under direct supervision of a court, which can be compared to Chapter 7 in the U.S. legal system.

Typically, moving from the first to the last, we observe a worsening of debtor's financial distress.

Each proceeding may have different outcomes, which the literature has classified into three categories: (i) foreclosure, (ii) reorganization (continuation), and (iii) liquidation, as a going concern or as piecemeal sale (Djankov, et al., 2008). Figure 1 summarizes possible outcomes of each Italian procedure, distinguishing according to the literature. At the extremes, we find Private Foreclosure and Liquidation: the first aims to continue the business as a going-concern, while the latter, by definition, targets to liquidate the firm and then to distribute cash proceeds to creditors. In between, there are Foreclosure Endorsed by the Court and Reorganization which could produce every combination of outcomes as they tend to be flexible legal instruments.

Figure 1 – Bankruptcy proceedings for SMEs and possible outcomes
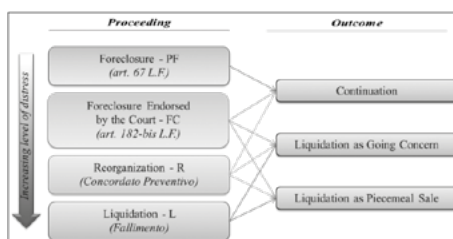
The figure outlines possible outcomes for each bankruptcy proceeding available to SMEs in Italy. The outcomes are identified according to the prevailing literature (Djankov, et al., 2008).

Different proceedings require distinct rights and enforcement procedures to be effective. Table II presents the main distinguishing features of each bankruptcy proceeding available for SMEs, as of the time when the last reform in our data sample is enforced (i.e., 2013).

Table II – Main features of bankruptcy proceedings for SMEs in Italy

(comparison as of Law 98/2013)	Private Foreclosure (art. 67)	Foreclosure endorsed by the Court (art. 182-bis)	Reorganization (Concordato Preventivo)	Liquidation (Fallimento)
Trigger	Debtor	Debtor	Debtor	- Debtor - Creditor - Criminal Court
Type of renegotiation	One-to-one	One-to-one	All creditors	All creditors
Majority approval required	No	Yes, 60% of credits	Yes, 50% + 1 of credits	No
Control rights	Debtor	Debtor	- Continuation: Debtor - Liquidation: Creditors	Creditors
Creditors' Committee	No	No	- Continuation: No - Liquidation: Yes	Yes
Court supervision on execution	No	No	Yes	Yes
Administrator appointed by the court	No	No	- Continuation: No - Liquidation: Yes	Yes
Automatic Stay	No	Yes, 60 days	Yes	Yes
Moratorium *ex lege*	No	Yes, 120 days	Yes	Yes
Cram-down procedure	No	No	Yes	Yes
Super priority financing	Yes	Yes (limited)	Yes (limited)	No
Dilution of secured claims	Not by law	Not by law	Limited	Limited
Repetition in case of subsequent liquidation	No	No	No	-
Subsequent proceedings allowed	All	All	Liquidation	Liquidation

The table lists the bankruptcy proceedings available for SMEs in Italy and compares their main characteristics as of the end of 2013.

For instance, PF and FC are a one-to-one renegotiation between the debtor and a creditor, while Reorganization is a collective procedure. In case of Reorganization, creditors are required to vote and there is a cram-down process, under certain conditions, while in case of FC any creditor has the individual right to accept the restructuring plan proposed by the debtor, although s/he might be forced to accept a moratorium if the plan is endorsed by the court. Again, PF provides no automatic stay for creditors, while Reorganization does. Such a variety of rights is known by a bank when it lends new finance to a firm; therefore, to assess the impact of the Bankruptcy Law on bank credit market, it is essential to include in the analysis all the proceedings (and the consequent rights) that a financially distressed debtor might eventually activate. That is the reason why the CRI considers all the bankruptcy proceedings available to SMEs as we describe better in § 3.3.

Our work exploits the case of Italy, where from 2005 to 2015 seven main reforms of bankruptcy proceedings for SMEs are introduced and change repeatedly creditor rights (Table III), either weakening or strengthening them. Such an unusually active phase of reforms allows to examine the effects of changing creditor rights on credit market at micro level, within a country and from a time-series perspective, rather than examining a macro level cross-country comparison as major studies do.

Table III – Legislative changes to the Italian Bankruptcy Law (2005-2015)

Reform	Law Type and Number	Issued	Published	Applicable by	Note
2005	D.L. 35/2005	14.03.2005	16.03.2005	17.03.2005	
	L. 80/2005	14.05.2005	14.05.2005	15.05.2005	
2006	D. Lgs. 5/2006	09.01.2006	16.01.2006	16.07.2006	
2008	D. Lgs. 169/2007	12.09.2007	16.10.2007	01.01.2008	
	D.L. 185/2008	29.11.2008	29.11.2008	29.11.2008	(*)
	D.L. 69/2009	18.06.2009	19.06.2009	04.07.2009	(*)
2010	D.L. 78/2010	31.05.2010	31.05.2010	31.05.2010	
	L. 122/2010	30.07.2010	30.07.2010	31.07.2010	
2012	D.L. 83/2012	22.06.2012	26.06.2012	11.09.2012	
	L. 134/2012	07.08.2012	11.08.2012	11.09.2012	
	D.L. 179/2012	18.10.2012	19.10.2012	20.10.2012	(*)
	L. 221/2012	17.12.2012	18.12.2012	19.12.2012	(*)
	L. 228/2012	24.12.2012	29.12.2012	01.01.2013	(*)
2013	D.L. 69/2013	21.06.2013	21.06.2013	22.06.2013	
	L. 98/2013	09.08.2013	20.08.2013	21.08.2013	
2015	D.L. 83/2015	27.06.2015	27.06.2015	27.06.2015	(^)
	L. 132/2015	06.08.2015	20.08.2015	21.08.2015	
	D. Lgs. 180/2015	16.11.2015	16.11.2015	16.11.2015	(*)

The table presents the legislative modifications of the Italian Bankruptcy Law (R.D. 267/1942) from 2005 to 2015. *D.L.* stands for "Decreto Legge" (Decree-Law); *L.* for "Legge" (Law); *D.Lgs.* for "Decreto Legislativo" (Legislative Decree). *Issued* is the date of issue of the law; *Published* is the date when the law is published on *Gazzetta Ufficiale* of the Italian Republic; *Applicable by* is date from when new bankruptcy proceedings are subject to a given law, marked with (^) when a part of the Decree-Law was applicable only after the publication of the subsequent Law. Modifications marked by (*) are not considered in the analysis, because they do not affect directly the creditor rights but have only procedural effects.

Specifically, there are seven main reforms impacting creditor rights (2005, 2006, 2008, 2010, 2012, 2013, and 2015); other legislative interventions modify the B.L. but do not directly affect creditor rights, being thus immaterial for our purposes[2]. In this work, we focus exclusively on the reforms that did have an impact on creditor rights. The starting point is 2005 because in that year PF and FC are firstly introduced and from the same year the Government and the Parliament have begun the B.L.'s reforming process (also called "reforming season").

Overall, we observe that Italian legislation has progressively moved from a pro-creditor to a pro-debtor approach, more similar to the U.S. system, thus relaxing legal protection of creditors at least

---

[2] For example, D.L. 179/2012 and L. 221/2012 enforced the possibility of sending/ receiving documents by certified e-mail rather than registered letter.

until 2013. On the contrary, emerging economies such as Brazil, China, and Russia have introduced new Bankruptcy Laws increasing the legal protection of creditors, in an attempt to improve firm's access to external finance (Ponticelli, 2013). The Parliament itself puts emphasis on the shift towards a more debtor-friendly philosophy; the illustrative report to the Parliament accompanying the draft of the D.L. 83/2012 (2012 reform) states that Reorganization would be modified on the model of U.S. Chapter 11. Major legal scholars stress that "*reformed Bankruptcy Law shows special preference for – and, somehow, even fosters – all those solutions which are aimed at the continuation of the business activity and, more in general, at the preservation of the value of the production plants*" (Barachini, 2014); correspondingly, major law firms comment that "*Italian Bankruptcy Law has been extensively reformed in recent years in order to focus on the reorganization of distressed and failing businesses rather than on their liquidation*" (Shearman & Sterling LLP, 2012; Freshfields Bruckhaus Deringer LLP, 2012). Later in 2015, as underlined by major law firms, regulators have introduced amendments meant to address issues that have arisen in the three years following the 2012 Reform (Cleary Gottlieb Steen & Hamilton LLP, 2015), but still in the spirit of facilitating business continuation and debt restructuring (Clifford Chance Studio Legale Associato, 2015). These amendments result in the strengthening of some creditor rights (e.g., the abolishment of "silent consent" vote introduced in Reorganization from 2012), while weakening others (e.g., the introduction of a possible cram-down process in a FC to reduce the so-called "hold-out" problem).

It is important to consider the macro-context at the time when main reforms are issued. The 2010 and 2012 reforms were designed because Italian SMEs were in trouble; in this setting one would expect Chapter 11 oriented reforms to have a positive effect on firms' access to finance. Our main query is whether these reforms really facilitate the life of SMEs or if there are any *ex-post* unintended consequences for SMEs themselves, specifically after a careful consideration of judicial enforcement's impacts on the reforms, driven by the different level of judicial efficiency that creditors and firms face across the Italian judicial districts.

There is an important stylized fact that direct our attention to the research question: the number of new in-court proceedings after the reforms. The number of new reorganizations has been, on average,

constantly increasing from 2008, but with a sharp boost after the 3rd quarter of 2012 (Figure 2, left panel): new reorganizations spike from 421 (2012-Q2) to 1,600 (2012-Q4), and then reduce to 1,172 in the last quarter of 2013. Italy has never seen such a high number of reorganizations in its recent history. The historical average of new reorganizations between 2001 and 2011 is approximately 200 per quarter; this may be linked to the reduction of creditor rights in Reorganization that characterizes 2012 reform. Besides, following to the reforms, there is an increasing use of Reorganization as a substitute for Liquidation (Figure 2, right panel): the share of Reorganization in the new in-court proceedings rises to 29.21% (2012-Q4) from 3.76% (2005-Q2), compared to an historical average of 7.5% between 2001 and 2011. This might suggest that the regulators' intention to favourite restructuring over liquidation has been achieved. Yet, the question is whether such an increase in the number of new reorganizations is positive for SMEs' bank credit conditions, and especially for those not in distress that do not benefit from accessing a bankruptcy proceeding.

Figure 2 – Number of new Reorganization proceedings
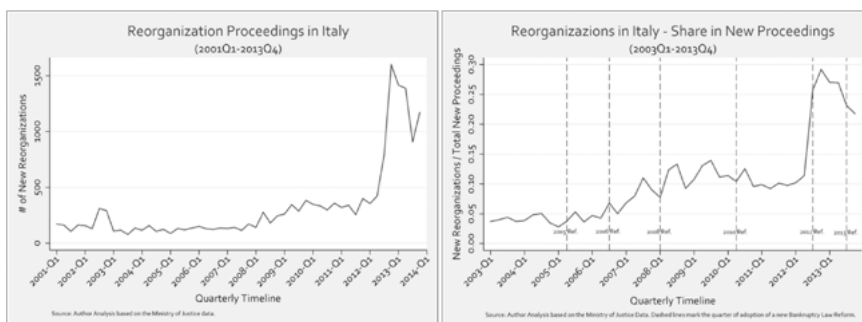
The left panel plots the absolute number of new Reorganization proceedings started in each quarter from 2001Q1 to 2013Q4. The right panel plots the percentage of new Reorganization proceedings over the all new Proceedings (Reorganization and Liquidation) started in each quarter from 2003Q1 to 2013Q4. The vertical reference lines mark the quarter when 2005, 2006, 2008, 2010, 2012 and 2013 Bankruptcy Law reforms are adopted. Source of raw data: Ministry of Justice.

3.2 Efficiency heterogeneity across courts

Court efficiency is a proxy for the quality of law enforcement. The key function of courts in credit relationship is to force solvent borrowers to repay when they fail to do so physiologically. Hence, poor judicial enforcement increases opportunistic behaviour of borrowers: anticipating that creditors will be unable to recover their loans eas-

ily and cheaply via the court, borrowers will have incentives to default; lenders respond by reducing availability of credit (Jappelli, et al., 2005).

Table IV – Average Liquidation Duration in days - Summary Statistics

Average duration of liquidation proceedings (*Liquidation_Time*)								
Sample	Mean	Median	1st Quartile	3rd Quartile	Min	Max	Max / Min	St. Dev.
All	3,938	3,454	2,628	4,807	1,489	11,875	7.97x	1,817
By Geography:								
North-West	2,527	2,509	2,151	2,876	1,549	3,950	2.55x	552
North-East	2,415	2,269	2,060	2,767	1,489	3,828	2.57x	560
Centre	3,041	2,964	2,600	3,334	2,112	4,541	2.15x	592
South	4,495	4,313	3,552	5,114	2,398	7,926	3.31x	1,246
Islands	6,002	5,505	4,470	6,919	2,429	11,875	4.89x	2,180
By Year:								
2001	4,752	4,201	3,164	5,900	2,133	11,875	5.57x	2,168
2004	3,960	3,432	2,834	4,665	1,567	7,396	4.72x	1,571
2009	3,719	3,322	2,342	4,364	1,542	8,121	5.27x	1,711
2013	2,894	2,628	2,092	3,376	1,549	5,935	3.83x	1,100

The table reports statistics for the *Average duration of liquidation proceedings* (*Liquidation_Time*). Source is the Ministry of Justice. Data are at judicial district level and pooled for the period 2001-2013. Values are collected at yearly frequency and in number of days. *All* represents the full sample. *Geography* is a set of binary variables mapping the geographic area to which each judicial district belongs, according to ISTAT classification (*North-West*, *North-East*, *Centre*, *South*, and *Islands*). *Year* represents the subsample for a given year; statistics for remaining years are reported in the online appendix. For additional variables' definitions, please see Appendix B.

From 2012, Italian judicial system is made of 166 courts specialized in treating bankruptcies; each court is univocally comprised in one of the 26 judicial districts[3]. Italian judicial system does not bright amongst stars for efficiency. It ranks 111th out of 189 countries for its capability in enforcing contracts via courts, because the process takes on average 1,120 days, compared to 538 days for the richest OECD countries. Italy fares better on resolving insolvency: it come 22nd in the ranking (The World Bank, 2016). Yet, efficiency is highly dispersed across judicial districts.

[3] In 2012 a reform changes the number of courts in Italy and their corresponding territory (D. Lgs. 155/2012), but it did not change the number and the geography of the judicial districts. Our analysis is at judicial district level and thus it is not affected by such a reform.

When analysing bankruptcy proceeding, duration of liquidation is an indicator of the judicial efficiency (Djankov, et al., 2003). In Italy, the average duration of a Liquidation proceeding (*Liquidation_Time*) is 3,938 days (10.8 years) between 2001 and 2013 (Table IV).

We find a significant cross-sectional dispersion in the duration of a Liquidation as the maximum duration is 7.97 times the minimum and the standard deviation is 1,817 days. There is a jeopardized geography with a clearly different situation between North and South of the country. In the North-West and North-East the average duration is respectively 2,527 and 2,415 days, compared to 4,495 and 6,002 days in the South and in the Islands. Over time, we observe an increase in the efficiency, with the average duration reducing from 4,752 day in 2001 to 2,894 in 2013. Yet, cross-sectional dispersion remains relevant over time, as depicted in Figure 3.

Although duration of Liquidation proxies the efficiency of courts, it is not driven only by courts themselves. In fact, in a liquidation there are multiple players: the proceeding may last longer because the administrator appointed by the court is inefficient, or because market conditions worsen and obstacle the sale of some assets (e.g., real estate in the recent years in Europe). Moreover, the length of time of a liquidation may depend on the industry: it may take longer to liquidate a firm in a capital intense industry (e.g., iron and steel) than one in a labour-intense business (e.g., consultancy). To rule out these issues, we investigate even the duration of the examination of a filing for a liquidation proceeding (*Filing_Time*): it is the time elapsing between the filing (from creditor, debtor, or the criminal court) for a liquidation proceeding and the decision of the court about starting (or not) the liquidation itself. Such a time is really related only to the court efficiency, and it is not affected by spurious effects, such as industry concentration in a judicial district, market conditions, or administrators' ability. We find that the duration of filings is significantly dispersed: the average time is 168 days with a standard deviation of 69 days between 2001 and 2013 (Table V).

Figure 3 – Average Liquidation Duration decile distribution
by Judicial District
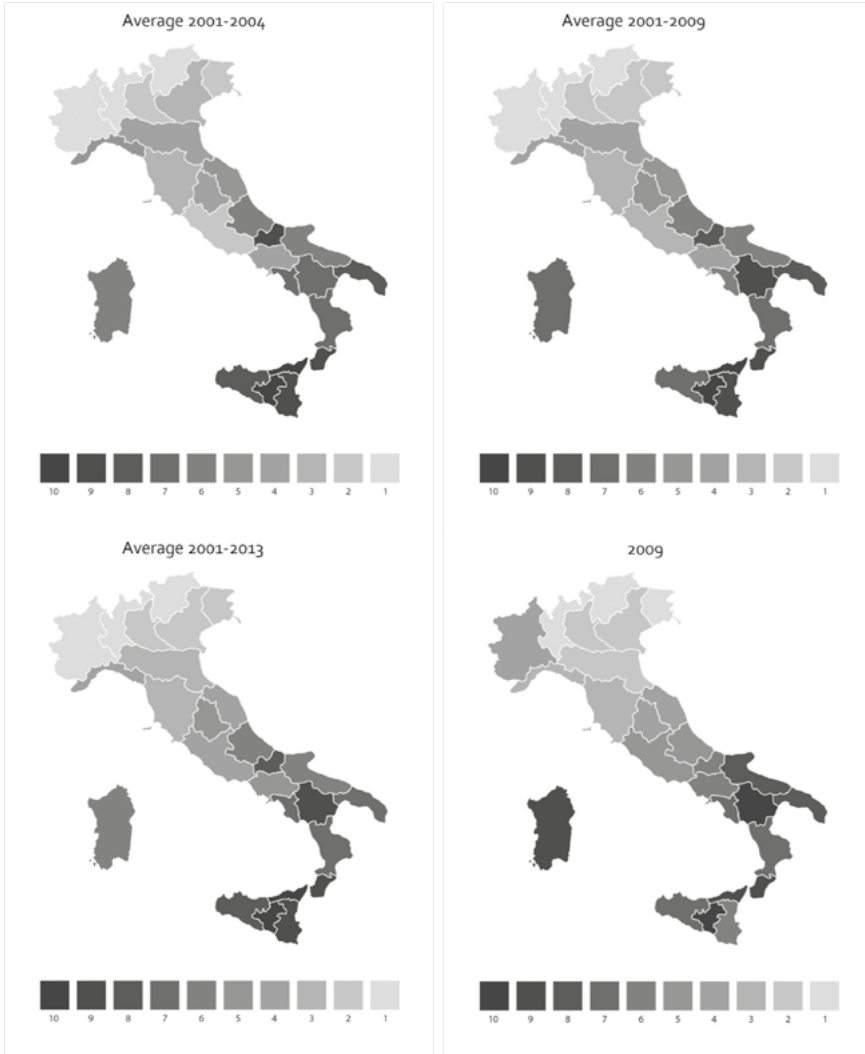
The figure plots the decile distribution of liquidation duration (*Liquidation_Time*) in each of the 26 Italian judicial districts. The colour scale of the deciles is reported at the bottom of each panel; the higher the decile, the longer the duration. Top left panel uses distribution of average liquidation duration between 2001 and 2004. Top right panel plots distribution of average liquidation duration between 2001 and 2009. Bottom left panel reports distribution of average liquidation duration between 2001 and 2013. Bottom right panel shows distribution of average liquidation duration in 2009. Source: author analysis based on data from Ministry of Justice – Statistical Office.

Table V – Average Filing Duration in days - Summary Statistics

Average duration of filings for Liquidation (*Filing_Time*)

Sample	Mean	Median	1st Quartile	3rd Quartile	Min	Max	Max / Min	St. Dev.
All	168	147	123	202	59	495	8.34x	69
By Geography:								
North-West	116	111	101	127	89	167	1.88x	19
North-East	121	119	94	134	59	240	4.04x	37
Centre	147	142	134	163	120	192	1.61x	19
South	198	188	152	225	94	495	5.24x	68
Islands	209	174	141	282	98	426	4.34x	87
By Year:								
2001	192	169	124	256	90	374	4.16x	86
2004	159	137	106	203	87	298	3.42x	63
2009	149	137	110	164	68	412	6.02x	66
2013	172	161	132	192	84	321	3.81x	57

The table reports statistics for the *Average duration of filings for Liquidation* (*Filing_Time*). Source is the Ministry of Justice. Data are at judicial district level and pooled for the period 2001-2013. Values are collected at yearly frequency and in number of days. *All* represents the full sample. *Geography* is a set of binary variables mapping the geographic are to which each judicial district belongs, according to ISTAT classification (*North-West, North-East, Centre, South*, and *Islands*). *Year* represents the subsample for a given year; statistics for remaining years are reported in the online appendix. For additional variables' definitions, please see Appendix B.

Similarly to what we observe for the duration of Liquidation, the northern regions appear more efficient than the southern ones: North-West is the most efficient area with a duration of 116 days, compared to 209 days in the Islands. Over time, courts have become more efficient and reduced the filings' duration, from an average of 192 in 2001 to 172 days in 2013. Again, cross-sectional dispersion remains significant as Figure 4 shows.

We exploit the cross-sectional dispersion of court efficiency as an exogenous source of different exposure to each reform of the B.L.. Crucially, in Italy firms are not allowed to choose the judicial district to which file for a bankruptcy proceeding, but they must file to the court where the firm is headquartered; besides, in order to avoid strategic relocation, if a firm moves its headquarter in the twelve months preceding the filing, such a move is irrelevant and the firm must file to the court of the previous headquarter (Art. 9 B.L.).

Figure 4 – Average Filing Duration decile distribution by Judicial District
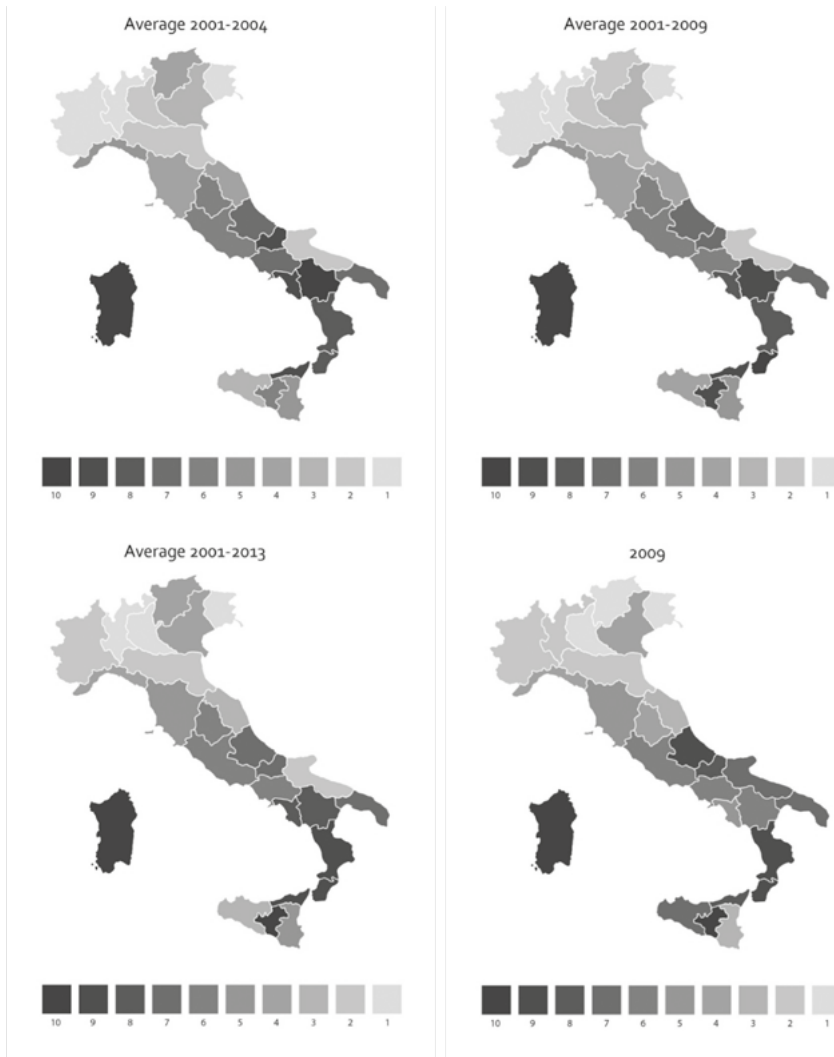
The figure plots the decile distribution of filing duration (*Filing_Time*) in each of the 26 Italian judicial districts. The colour scale of the deciles is reported at the bottom of each panel; the higher the decile, the longer the duration. Top left panel uses distribution of average filing duration between 2001 and 2004. Top right panel plots distribution of average filing duration between 2001 and 2009. Bottom left panel reports distribution of average filing duration between 2001 and 2013. Bottom right panel shows distribution of average filing duration in 2009. Source: author analysis based on data from Ministry of Justice – Statistical Office.

In conclusion, the structural characteristic of the Italian judicial system provides us the ideal environment to test the hypothesis that the same reform of the Bankruptcy Law may impact differently the credit market, depending on the efficiency of the court called into action in case of a bankruptcy proceeding.

3.3 Creditor Rights Index

We exploit each reform as an exogenous source of time variation to analyse how creditors' rights affect the credit market. The starting point of our analysis is the CRI, because we need to assess whether a given reform strengthens or weakens creditor rights. Then, we study how changes in Bankruptcy Law affect CRI and relate CRI to the volume and price of bank credit.

The CRI is developed starting from the seminal work of LLVS (La Porta, et al., 1998), which introduces a creditor rights index based on 4 rights. Original creditor rights index has been extended up to 17 rights, which are crucial to examine the effective power that creditors have when dealing with a firm. For example, the 17 rights include: automatic stay on assets when the procedure begins; creditor individual voting rights on the restructuring/liquidation plan; cram-down procedure by the court to force even disapproving creditors to accept the restructuring/liquidation plan; and the possibility for a debtor to unilaterally terminates a contract when the proceeding starts. The complete description of the 17 rights is provided in Appendix A.

CRI assesses the level of Creditor Rights and is measured for Italy, although it can be easily replicated globally for any other country. For each right, as score of 0 (pro-debtor) or 1 (pro-creditor) is assessed. The sum of the score across all the rights represent the CRI at a given point in time; therefore, the higher the CRI, the stronger the legal protection. From a cross-sectional perspective, CRI is measured separately for each of the four bankruptcy proceedings, ranging from a minimum of 0 to a maximum of 17. Total CRI is the sum of CRI across all the proceedings; it can vary from a minimum of 0 to a maximum of 68. From a time-series standpoint, CRI has been originally measured from 31.12.2004 to 31.12.2014, and we extend it to 31.12.2015 in order to incorporate also the most recent Italian reform. Table VI summarizes CRI from 2004 to 2015.

Table VI – Creditor Rights Index in Italy from 2004 to 2015

Bankruptcy Proceeding	Creditor Rights Index (CRI) Year											
	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15
Private Foreclosure (PF)	10	9	9	9	9	9	9	9	9	9	9	9
Foreclosure Endorsed by the Court (FC)	10	10	10	10	9	9	7	7	7	7	7	6
Reorganization (R)	10	8	8	8	8	8	7	7	2	3	3	5
Liquidation (L)	7	7	9	9	9	9	9	9	9	9	9	9
Total CRI	**37**	**34**	**36**	**36**	**35**	**35**	**32**	**32**	**27**	**28**	**28**	**29**

The table presents the CRI measured for each bankruptcy proceeding between 2004 and 2015, as of year-end. Total CRI is the sum of CRI across all the proceedings.

Over time, Total CRI has lessened significantly, reducing by 22% between 2004 and 2015, with a maximum drop of 27% following the 2012 Reform. This is consistent with the pro-debtor philosophy pursued by the regulators. Reforms of 2010 and 2012 drive most of the reduction, as it is clearly depicted in Figure 5, left panel. The biggest (negative) variation due a single reform happens in 2012; the drop of CRI registered in 2012 has been marginally offset sooner by 2013 reform, which interrupts the reduction season of the CRI itself, and later by the 2015 reform.

From a cross-sectional point of view (Figure 5, right panel), we observe that creditor rights have been modified differently, in magnitude and in direction, depending on the specific bankruptcy proceeding and reform; this suggests the importance of including all the proceedings when assessing the impact of B.L. on the bank credit market, because banks do not know *ex-ante* which proceeding a borrower might eventually activate. Liquidation's CRI increases from 7 to 9 (+29%), while Reorganization's CRI suffers the biggest contraction, earlier reducing to a minimum of 2 from a maximum of 10, which corresponds to an 80% reduction of creditor rights in that proceeding, and then bouncing back to 5 which is half as much as the rights before the reforming season. The reforms intervene only once on PF when its discipline was introduced; on the contrary, regulators have changed repeatedly creditor rights in FC, which register an overall trend of reduction over time (-40% from 2004 to 2015).

Figure 5 – Creditor Rights Index
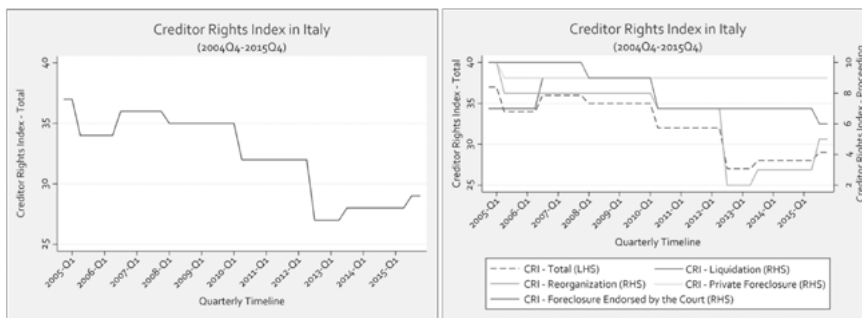
The left panel plots Total Creditor Rights Index from 2004Q4 to 2015Q4. The right panel depicts Total Creditor Rights Index (dashed line, LHS scale), CRI for Reorganization (orange line, RHS scale), CRI for Foreclosure endorsed by the Court (green line, RHS scale), CRI for Liquidation (red line, RHS scale) and CRI for Private Foreclosure (light blue line, RHS scale).

As the data on CRI proves, regulators have modified repeatedly and substantially creditor rights during the last 11 years; we exploit the situation to study the effects of a series of reforms over time within a developed country. In addition, the design of our CRI can capture the differences across all the proceedings; this is crucial, because increase of creditor rights in a proceeding may be offset, or fostered, by a change of creditor rights in another one. What really matters for a bank is the whole portfolio of rights that it can eventually activate in case of borrowers' financial distress and consequent bankruptcy proceeding.

4. Empirical Framework and Results

We relate CRI with the price and volume of bank credit and we find that a contraction of creditor rights is associated with a reduction of volume and an increase of price (interest rate) of bank credit. The relationship between CRI and bank credit conditions is not equal across firms but it is more pronounced for firms operating in less efficient judicial districts. In addition, we investigate separately the three post-crisis Bankruptcy Law reforms (2010, 2012 and 2013) to see if each reform has different impacts on bank credit market conditions and, thus, SMEs access to finance.

Our work is based on a comprehensive and novel dataset collected at single credit level and on a DID econometric strategy which isolates the causal effects of Bankruptcy Law reforms. This chapter presents the data (§ 4.1), the identification strategy (§ 4.2), the econometric specification (§ 4.3), the main results (§ 4.4), the individual reforms analysis (§ 4.5), and robustness checks (§ 4.6).

4.1 Data

The empirical analysis takes advantage of a unique and confidential database provided by one of the biggest Italian banks, with over 1,500 branches and a stronger presence in the richest regions, in order to focus on bank credit market for SMEs. The dataset is a completely anonymous panel based on the information collected to comply with banking supervisory requirements. It is built at facility (credit) level,

where a facility can be a line of credit, a loan, or a bank guarantee, of any technical kind, provided by the Bank to a single borrower. The dataset contains the province where a borrower is headquartered, being used to identify the judicial district in charge for a borrower's eventual bankruptcy proceeding. Finally, efficiency of any judicial district has been extrapolated from a dataset constructed with the Mistry of Justice Statistical Office. We merge data on credits with data on judicial efficiency using judicial district as the key variable.

4.1.1 Data sources

Proprietary Database: the dataset contains credits towards all firms that are client of the Bank, excluding financial and insurance companies. Data are provided both for performing and non-performing credits, as well as for cash and non-cash bank's exposure: therefore, the database represents the universe of the Bank's exposure to non-financial SMEs. The information is collected at quarterly frequency with a time horizon spanning from December 2009 to June 2014, for a total of 19 quarters: this permits to study the three Bankruptcy Law reforms that impact most CRI, namely 2010, 2012 and 2013 reforms.

The database has a total of more than 6.4 million credit times quarter observations, with an average of 340,281 credits and 147,409 firms per quarter, corresponding to 2.3 facilities per firm. Data on interest rates have been disclosed for a subsample of 1.4 million credits times quarter observations, primarily for loans. Such an extensive database allows to investigate the reaction of one lender to reforms at single credit level; this yields an ideal set-up to check the impacts of each bankruptcy law reform on the credit market at micro level. The analysis at single credit level is unique and disentangles the effects of reforms on the distinguishing feature of the bank credit market such as volumes of lending, pricing and guarantees.

Cerved – Centrale Bilanci: to complete the proprietary database, we gather firms' financial statements information from the Cerved database, collected by the Cerved Group and available to all banks via Centrale Bilanci. These data cover the universe of Italian corporations and are commonly used by banks to assess credit risk. From this database, we collect yearly information on income statements and balance sheets, such as revenues, EBITDA, assets, and firm's financing structure.

Ministry of Justice – Statistical Office: data on judicial efficiency has been obtained cooperating with the Ministry of Justice Statistical

Office. The dataset contains quarterly data on number of new reorganizations, liquidations, and filings for Liquidation for each of the 166 bankruptcy specialized courts. Besides, the database provides information about the average duration of liquidations and of filings for Liquidation, collected at a yearly frequency for each of the 26 judicial districts. The data are available from 2001 to 2013. They provide a comprehensive picture about the number of proceedings as well as their duration (and hence court efficiency).

European Central Bank (ECB): information about credit standards applied to SMEs has been collected by the ECB Bank Lending Survey.

Italian National Institute of Statistics (ISTAT): data on macroeconomics, such as gross domestic products and inflation are from ISTAT.

4.1.2 Variables of interest

A) <u>Outcome variables</u>

The main purpose of this work is to consider critically bank credit market's reaction to bankruptcy law reforms, disentangling the effects of law enforcement due to court efficiency. The two distinguishing features of each market are volume and price; hence we identify an output variable per each feature. Specifically:

(i)   *Volume variable*: we use the *Recoverable Amount at Default* (*RAD*) as our main proxy of volumes of credit. *RAD* is the euro amount that the Bank expects to recover in case of default, for a given credit i to firm j at time t. It is computed as the product of *Total Exposure at Default* (*EAD*) and the recovery rate (*RR*) for a given credit. *EAD* is the exposure at default of the Bank, both on and off balance, for a given credit i to firm j at time t; it represents the effective gross exposure of the Bank according to Basel rules, in case of debtor's default. *EAD* reflects an economic concept that is influenced by the amount of credit granted by the Bank, the amount of credit utilized by a firm, and the credit portfolio composition. The recovery rate (*RR*) is the percentage of a credit that a bank is expected to recover conditional on debtor's default, as estimated according to Basel regulation. *RAD* expresses the absolute Euro-value that a bank expects to recover in case of debtor's default, being thus the value that a bank monitors mostly both *ex-ante* (when evaluating a credit application) and *ex-post* (when assessing periodically its credit portfolio riskiness and composition).

(ii)   *Price Variable*: we use *Interest Rate Spread* (*Spread*) as main proxy for the price of credit. *Spread* is the difference between *Interest Rate* (*IR*) for credit *i* to firm *j* during quarter *t* and the average 3-month Euribor rate in that quarter. It represents the spread that the Bank charges over the interbank prevailing rate. *IR* is annual contractual interest rate charged by the Bank to firm *j* on the credit *i* at time *t*.

For the sake of completeness, we present summary statistics (§ 4.1.3) for both the main outcome variables (*RAD*, *Spread*) and their components (*EAD*, *IR*). In the result section (§ 4.4), we present results only for the main variables. We have run our econometric tests using also *EAD* and *IR* as output variables, and the results are totally confirmed.

Beyond our baseline tests, we perform the analysis also by splitting the sample in:

(iii)   less risky and riskier credits, because the consequences of an increase (decrease) in creditor rights may be an expansion (contraction) of the aggregate lending, and this could be particularly stressed depending on the level of judicial efficiency and on the riskiness of a borrower (Jappelli, et al., 2005; Djankov, et al., 2007). An expanding market may open up to riskier borrowers, while a shrinking one may rule out them, thus changing the riskiness of the portfolio composition for the lending bank;

　　　(i)   secured and unsecured credits, because a bank, following a reform, could even modify guarantees on a facility or the mix of secured and unsecured credits in its portfolio. Indeed, literature has shown that from the standpoint of a bank, collateral and lending rates can be substitute (Jappelli, et al., 2005);

　　　(ii)   new and old credits, because as a response to a reform a bank has always the option to reduce new facilities (number and amount), to deny roll-over of old credits, or to renew expired credit lines for a smaller amount and/or charging an higher spread.

　　B) Input variables

We can group input variables in four main economic groups (vector notation in parenthesis):

a)   *Credit characteristics* (X_{ijt}): to test our empirical implications, we utilize several credit specific features traditionally account-

ed for controls by the literature. All these features are recorded separately for each credit i to firm j at quarterly frequency t. *Guarantee* is a set of binary variables tracking whether a credit has no guarantee (*Unsecured*), a mortgage collateral (*Mortgage*), a pledge collateral (*Pledge*), an external guarantee provided by a consortium (*Confidi*), a personal guarantee (*Personal*), and/or any other guarantee different from the previous ones (*Other*). *Status* is a set of categorical variables indicating whether a credit is performing (*Bonis*) or is *Non Performing* according to the classification by four increasing levels of distress identified by Bank of Italy: *Past Due*, *Restructured*, *Incaglio*, and *Sofferenza*[4]. *Non Cash* is a binary variable taking the value of 1 if a credit is a non-cash exposure (e.g. bank guarantee). *New Facility* is a dummy variable tracking if a credit is newly issued in a given quarter t. *Maturity* is a set of binary variables mapping whether the original maturity of a credit is up to 1 year (*Short Term*), between 1 and 5 years (*Medium Term*), or above 5 years (*Long Term*). *Facility Nature* is a set of categorical variables indicating the technical nature of each facility (e.g. credit cards, loans, commercial facility, cash credit line, ...) as classified according to Bank of Italy's regulation requirements (SISBA codification). *Interest Rate Kind* is a set of dummy variables tracking the kind of interest rate applied to credit i to firm j in quarter t (fixed, variable, capped, ...) as classified by credit officers of the Bank. *Granted* is the granted amount of credit, used as a proxy of the credit size, and corresponds to the maximum nominal amount that a bank is willing to lend to a firm j for a given credit i at time t. The last two variables are used only when the outcome variable is either *Spread* or *IR*.

b) *Firm's structural characteristics (D_{jt})*: our empirical analysis controls even for structural characteristics of each firm j at quarterly frequency t. *Industry* is a set of categorical variables indicating the industry in which a firm operates; industry classification complies with Italian Chamber of Commerce categories (ATECO). *Segment Size* is a set of binary variables

---

[4] The classification of non performing facilities required by Bank of Italy is provided by "*Circolare n. 272 del 30 luglio 2008 - 6° aggiornamento, § B.6*" available on https://www.bancaditalia.it/compiti/vigilanza/normativa/archivio-norme/circolari/c272/C_272_Matrice_testo_integrale_6_agg.pdf.

tracking the credit segment size of a firm according to Bank of Italy's classification requirements to fulfil the Credit Register (Retail Business, Small Business, Corporate, …). *PD* is the 1-year probability of default that the Bank estimates according to Basle Rules for borrower j in quarter t; it is used only in the robustness checks.

c) *Firms' financing and operating characteristics ($F_{j(t-1)}$):* data from Centrale Bilanci (Cerved Group), as reported from the last available financial statements released before quarter t, are used to compute aggregate variables describing the operating and financial characteristics of firms. *Bank Debt / Net Debt* is the ratio of bank debt and total net debt for a given firm. *Bank Debt / Total Liabilities* is the firm's bank debt, divided by its total liabilities. *Leverage* is the ratio of firm's total assets and total equity. *Revenue* and *Assets* are total revenues and total assets as reported, respectively. *EBITDA Margin* is the earnings before interests, taxes, depreciations and amortizations, divided by *Revenue*.

d) *Macroeconomic and exogenous effects*: this group contains control variables used either in the main econometric specification or in the robustness analysis. Quarter times year ($Q \cdot Y$) is a set of binary variable mapping uniquely each quarter from 2009-Q4 to 2014-Q2. *Credit Cycle* is a control variable assessing the credit market conditions as perceived by loan officers and collected in the ECB Bank Lending Survey. *Province* stands for a set of categorical variables mapping the province where a firm is headquartered. *GDP Growth* is the quarterly percentage growth of Italian real gross domestic product. *Inflation* is the quarterly percentage change of National Index of Consumer Prices for Italy. *Unemployment Growth* is the quarterly percentage change of the Italian unemployment rate. *Bank Tier 1 Ratio* is the Core Tier 1 ratio of the Bank according to Basel Rules. The last four variables mentioned (*GDP Growth, Inflation, Unemployment Growth, Bank Tier 1 Ratio*) are used only in the robustness checks.

Appendix B provides comprehensive details on output and input variables meaning, computation and composition, grouped as described.

4.1.3 Descriptive Statistics

Cross-sectional statistics for *Recoverable Amount at Default* (*RAD*), *Total Exposure at Default* (*EAD*), *Interest Rate Spread* (*Spread*), and *Interest Rate* (*IR*) are presented in Table VII, Table VIII, Table IX and Table X, respectively.

Table VII – Recoverable Amount at Default cross-sectional summary statistics

Sample	Obs.	Mean	Median	1st Quartile	3rd Quartile	Min	Max	Standard Deviation
Recoverable Amount at Default (RAD)								
All	5,552,273	108,282	12,600	2,488	48,153	0	165,961,836	818,478
By Guarantee:								
Unsecured	2,468,075	93,176	7,489	708	33,176	0	165,961,836	963,945
Mortgage	506,328	444,484	121,475	53,467	315,852	0	69,256,095	1,372,579
Pledge	156,442	167,770	28,761	9,199	84,085	0	108,004,358	1,187,435
Confidi	456,000	48,530	20,176	8,840	45,354	0	6,929,802	123,452
Personal	2,495,276	75,469	14,327	4,141	46,241	0	62,569,869	389,812
Other	49,206	231,475	13,872	4,304	63,060	0	33,454,708	1,137,362
By Status:								
Bonis	4,693,423	113,049	12,405	2,452	48,928	0	140,818,250	849,552
Past Due	37,127	58,245	6,581	217	26,822	0	19,982,859	393,266
Restructured	16,591	540,651	67,702	12,911	325,682	0	165,961,836	3,079,934
Incaglio	256,367	105,132	14,321	2,237	52,931	0	108,004,358	699,481
Sofferenza	548,765	59,295	13,378	3,071	41,073	0	29,009,230	266,287
By Maturity:								
Short	2,716,279	58,391	8,033	538	29,194	0	165,961,836	660,030
Medium	1,790,078	74,263	9,825	2,530	30,135	0	140,818,250	776,509
Long	1,045,915	296,075	68,793	21,085	184,711	0	106,107,081	1,161,537
n/a	1	0	0	0	0	0	0	
By New Facility:								
New	499,162	72,388	9,043	1,357	30,382	0	140,818,250	698,336
Old	4,826,507	110,779	12,836	2,525	49,676	0	165,961,836	822,796
n/a	226,604	134,165	17,846	4,960	64,797	0	100,000,000	957,471

The table reports cross-sectional statistics for the *Recoverable Amount at Default* (*RAD*). Data are at credit-quarter level and pooled for the period 2009Q4-2014Q2. Monetary values are in Euro. *All* represents the full sample. *Guarantee* is a set of binary variables mapping whether a credit has no collateral (*Unsecured*), is guaranteed by a mortgage (*Mortgage*), a pledge (*Pledge*), a consortium (*Confidi*), a personal guarantee (*Personal*), or any other guarantee (*Other*). *Status* is a set of categorical variables indicating whether a credit is performing (*Bonis*) or is *Non Performing* according to Bank of Italy's categories: *Past Due*, *Restructured*, *Incaglio*, and *Sofferenza*. *Maturity* is a set of binary variables mapping whether the original maturity of a given credit is up to 1 year (*Short Term*), between 1 and 5 years (*Medium Term*), or above 5 years (*Long Term*). *New Facility* is a dummy variable indicating if a credit is newly issued in a given quarter *t*. "*n/a*" stands for "not available". For additional variables' definitions, please see Appendix B.

Table VIII – Total Exposure at Default cross-sectional summary statistics

	Total Exposure at Default (*EAD*)							
Sample	**Obs.**	**Mean**	**Median**	**1st Quartile**	**3rd Quartile**	**Min**	**Max**	**Standard Deviation**
All	6,465,338	139,106	14,960	1,177	61,104	0	250,000,000	1,188,821
By Guarantee:								
Unsecured	3,167,346	122,854	5,900	42	37,050	0	250,000,000	1,438,709
Mortgage	509,918	542,858	143,545	63,184	378,810	0	92,157,144	1,719,163
Pledge	160,375	230,866	38,962	12,020	112,662	0	154,661,808	1,719,805
Confidi	460,172	71,818	31,054	14,142	69,877	0	7,286,187	161,486
Personal	2,704,617	99,830	20,991	4,740	67,611	0	103,320,000	498,539
Other	50,681	372,767	24,928	7,500	109,633	0	59,022,352	1,905,454
By Status:								
Bonis	5,511,499	144,862	14,486	908	62,106	0	250,000,000	1,235,101
Past Due	39,209	72,988	7,823	264	32,493	0	27,531,972	512,018
Restructured	22,856	655,436	77,083	8,998	395,723	0	169,627,664	4,122,570
Incaglio	287,025	119,588	14,884	1,527	57,907	0	154,661,808	899,247
Sofferenza	604,749	80,686	18,259	4,365	54,762	0	44,344,848	386,529
By Maturity:								
Short	3,464,627	83,107	6,842	44	38,202	0	200,186,394	964,159
Medium	1,894,029	114,735	14,935	3,750	44,869	0	250,000,000	1,311,517
Long	1,105,658	355,888	79,342	23,808	214,290	0	165,375,000	1,529,344
n/a	1,024	618,766	74,278	10,402	293,660	0	42,885,453	2,905,759
By New Facility:								
New	625,767	92,358	8,514	261	38,427	0	250,000,000	1,019,234
Old	5,548,997	143,710	15,586	1,385	64,301	0	250,000,000	1,202,029
n/a	290,574	151,865	16,376	1,455	69,062	0	169,627,664	1,269,422

The table reports cross-sectional statistics for the *Total Exposure at Default* (*EAD*). Data are at credit-quarter level and pooled for the period 2009Q4-2014Q2. Monetary values are in Euro. *All* represents the full sample. *Guarantee* is a set of binary variables mapping whether a credit has no collateral (*Unsecured*), is guaranteed by a mortgage (*Mortgage*), a pledge (*Pledge*), a consortium (*Confidi*), a personal guarantee (*Personal*), or any other guarantee (*Other*). *Status* is a set of categorical variables indicating whether a credit is performing (*Bonis*) or is *Non Performing* according to Bank of Italy's categories: *Past Due*, *Restructured*, *Incaglio*, and *Sofferenza*. *Maturity* is a set of binary variables mapping whether the original maturity of a given credit is up to 1 year (*Short Term*), between 1 and 5 years (*Medium Term*), or above 5 years (*Long Term*). *New Facility* is a dummy variable indicating if a credit is newly issued in a given quarter t. "*n/a*" stands for "not available". For additional variables' definitions, please see Appendix B.

The average *RAD* for a credit over the sample period is 108,282 Euro. The *RAD* varies substantially across our sample as the 1st and the 3rd quartile of the distribution are 2,488 and 48,153 Euro, respectively. The median *RAD* is significantly lower than the mean and equal to 12,600 Euro, because the data focuses on SMEs. Heterogeneity in RAD across credit characteristics, presented in the lower panels of Table VII, suggests the usual relationships: the average mortgage-backed credit is significantly bigger (444,484 Euro) than the average unsecured credit (93,176 Euro); restructured credits on average tend to be larger (540,651 Euro) than the average credit in the sample, because restructuring is costly and it is thus worth only for more relevant exposures, as the low number of observations for restructured credits proves. The average *RAD* increases with maturity, but the number of short-term facilities (2,716,279) is by far the largest, constituting approximately 50% of the sample. Finally, newer facilities are on average smaller (72,388 Euro) than older ones (110,779 Euro). Similar comments apply to *EAD* descriptive statistics (Table VIII).

The average *Interest Rate Spread* in the sample is 1.76%; the dispersion is relevant since in the 1st and 3rd quartile *Spread* is 1.00% and 2.25%, respectively. Besides, the interquartile range widens over the sample period, increasing from 1.5% (2009-Q4) to 2.9% (2014-Q2). The lower panels of Table IX reveals heterogeneity in *Spread* depending on credit features: secured credits pay on average a lower rate, with the lowest spread in case of mortgage-backed credits (1.31%); short term credits are charged, on average, a significantly higher spread (3.01%) than long term facilities (1.43%); newer facilities are on average more expensive (2.83%) than older ones (1.72%). Equivalent description is applicable to *Interest Rate* (Table X). These statistics are consistent with major findings in the literature (Strahan, 1999; Santos, 2011).

Table XI, Table XII, Table XIII, and Table XIV reports time-series summary statistics for *RAD, EAD*, *Spread*, and *IR*, respectively[5].

---

[5] The book reports statistics only for the ending quarter of each year; additional quarters are available but not disclosed.

Table IX – Interest Rate Spread cross-sectional summary statistics

Interest Rate Spread (*Spread*)

Sample	Obs.	Mean	Median	1st Quartile	3rd Quartile	Min	Max	St. Dev.
All	1,460,388	1.76	1.50	1.00	2.25	-1.88	8.75	1.51
By Guarantee:								
Unsecured	221,911	1.81	1.50	0.00	2.50	-1.10	8.75	1.72
Mortgage	433,916	1.31	1.25	1.00	1.50	-1.50	6.50	0.80
Pledge	41,642	1.97	1.75	1.00	2.75	0.00	8.00	1.59
Confidi	348,339	1.80	1.50	1.00	2.50	0.00	8.00	1.37
Personal	845,398	1.79	1.50	1.00	2.40	-1.88	8.75	1.54
Other	6,936	1.51	1.30	0.00	2.20	-0.33	8.00	1.38
By Status:								
Bonis	1,359,862	1.76	1.50	1.00	2.25	-1.88	8.75	1.51
Past Due	11,233	2.36	2.00	0.90	3.25	0.00	8.00	2.15
Restructured	3,443	1.30	1.25	1.00	1.50	0.00	6.50	0.80
Incaglio	83,225	1.72	1.50	1.00	2.10	0.00	8.00	1.47
Sofferenza	2,625	1.64	1.50	1.00	2.00	0.00	8.00	1.23
By Maturity:								
Short Term	18,366	3.01	3.25	1.55	4.30	0.00	8.00	1.85
Medium Term	596,313	2.19	1.90	1.00	3.00	-1.88	8.75	1.85
Long Term	845,709	1.43	1.30	0.98	1.75	-1.50	8.00	1.09
By New Facility:								
New	74,914	2.83	2.50	1.25	4.50	-1.50	8.75	2.10
Old	1,342,242	1.72	1.50	1.00	2.20	-1.88	8.75	1.46
n/a	43,232	1.15	1.25	0.00	1.50	-1.88	5.65	0.88

The table reports cross-sectional statistics for the *Interest Rate Spread* (*Spread*). Data are at credit-quarter level and pooled for the period 2009Q4-2014Q2. *Spread* values are in %. *All* represents the full sample for which *Interest Rate* (*IR*) and thus *Spread* are disclosed. *Guarantee* is a set of binary variables mapping whether a credit has no collateral (*Unsecured*), is guaranteed by a mortgage (*Mortgage*), a pledge (*Pledge*), a consortium (*Confidi*), a personal guarantee (*Personal*), or any other guarantee (*Other*). *Status* is a set of categorical variables indicating whether a credit is performing (*Bonis*) or is *Non Performing* according to Bank of Italy's categories: *Past Due, Restructured, Incaglio*, and *Sofferenza*. *Maturity* is a set of binary variables mapping whether the original maturity of a given credit is up to 1 year (*Short Term*), between 1 and 5 years (*Medium Term*), or above 5 years (*Long Term*). *New Facility* is a dummy variable indicating if a credit is new in a given quarter t. "*n/a*" stands for "not available". For additional variables' definitions, please see Appendix B.

Table X – Interest Rate cross-sectional summary statistics

| | **Interest Rate (IR)** | | | | | | | |
Sample	**Obs.**	**Mean**	**Median**	**1st Quartile**	**3rd Quartile**	**Min**	**Max**	**St. Dev.**
All	1,460,388	3.48	2.92	2.20	4.59	0.00	21.25	1.76
By Guarantee:								
Unsecured	221,911	4.05	3.35	2.43	5.25	0.00	21.25	2.18
Mortgage	433,916	2.74	2.41	1.90	3.05	0.00	16.90	1.27
Pledge	41,642	3.74	3.35	2.54	4.75	0.00	10.40	1.60
Confidi	348,339	3.35	3.00	2.34	4.15	0.00	11.10	1.39
Personal	845,398	3.61	3.08	2.35	4.73	0.00	11.10	1.68
Other	6,936	3.57	3.30	2.50	4.50	0.70	9.60	1.39
By Status:								
Bonis	1,359,862	3.47	2.93	2.20	4.59	0.00	21.25	1.74
Past Due	11,233	4.36	3.58	2.40	6.20	0.00	13.75	2.35
Restructured	3,443	2.23	2.26	1.55	3.00	0.00	6.54	1.00
Incaglio	83,225	3.53	2.85	2.10	4.56	0.00	21.25	2.00
Sofferenza	2,625	3.13	2.65	1.90	3.81	0.00	12.75	1.76
By Maturity:								
Short Term	18,366	4.19	3.97	3.21	4.96	0.00	12.50	1.39
Medium Term	596,313	4.02	3.58	2.65	5.15	0.00	14.00	1.82
Long Term	845,709	3.08	2.55	1.99	3.65	0.00	21.25	1.62
By New Facility:								
New	74,914	4.55	4.40	2.94	5.73	0.00	21.25	2.05
Old	1,342,242	3.42	2.90	2.17	4.50	0.00	20.90	1.73
n/a	43,232	3.31	2.55	2.22	4.10	0.00	9.96	1.61

The table reports cross-sectional statistics for the *Interest Rate* (*IR*). Data are at credit-quarter level and pooled for the period 2009Q4-2014Q2. *IR* values are in %. *All* represents the full sample for which *IR* is disclosed. *Guarantee* is a set of binary variables mapping whether a credit has no collateral (*Unsecured*), is guaranteed by a mortgage (*Mortgage*), a pledge (*Pledge*), a consortium (*Confidi*), a personal guarantee (*Personal*), or any other guarantee (*Other*). *Status* is a set of categorical variables indicating whether a credit is performing (*Bonis*) or is *Non Performing* according to Bank of Italy's categories: *Past Due*, *Restructured*, *Incaglio*, and *Sofferenza*. *Maturity* is a set of binary variables mapping whether the original maturity of a given credit is up to 1 year (*Short Term*), between 1 and 5 years (*Medium Term*), or above 5 years (*Long Term*). *New Facility* is a dummy variable indicating if a credit is new in a given quarter t. "*n/a*" stands for "not available". For additional variables' definitions, please see Appendix B.

Over time, the average *RAD* reduces substantially from 134,165 (2009-Q4) to 89,462 Euro (2014-Q2), which corresponds to a contraction of 33.3%; most of the contraction happens during 2011 and 2012, when two Bankruptcy Law reforms reducing CRI (2010 and 2012) become fully effective. Unsecured credits, whose statistics are presented in the lowest panel of Table XI, register a reduction in means of 118.6% which is highly faster than the overall sample; during the same period, the number of unsecured facilities in the portfolio dropped from 56.5% (2009-Q4) to 39.60% (2014-Q2). Although we cannot prove any causality at the current stages, this suggests the Bank is shifting towards a more secured portfolio as CRI goes down. Finally, the standard deviation of the *RAD* reduces significantly over the sample period. Similar interpretations apply to *EAD* (Table XII).

The average *Spread* increases monotonically over the sample period (Table XIII), going from 1.15% (2009-Q4) to 2.54% (2014-Q2), which corresponds to an increase of 139 basis points (henceforth, also "*bps*"). In the same period the rise is stronger for unsecured credits, equalling 174 bps. Moreover, as mentioned, the dispersion in spreads grows; interquartile range doubles from 150bps (2009-Q4) to 290 bps (2014-Q2) and the effect is stronger for unsecured credits, whose interquartile range almost triples from 150bps to 350bps. We cannot prove any causality between the bankruptcy law reforms and the lending rates at this stage, but we need to remember that during our period of analysis we observe monetary expansion and decreasing government bond yields, especially from 2012 onward. Despite that, the cost of bank funding rises impressively. Therefore, time-series statistics provides the sense of what is happening to the bank credit market during the period overlapping the three major reforms of the B.L.. Equivalent comments apply to *Interest Rate*.

Table XI – Recoverable Amount at Default time series summary statistics (2009Q4-2014Q2)

Recoverable Amount at Default (*RAD*) - Overall Credit Portfolio

(data in Euro)	2009-Q4	2010-Q4	2011-Q4	2012-Q4	2013-Q4	2014-Q2
Mean	134,165	129,187	100,813	99,586	88,013	89,462
Median	17,846	17,224	10,617	11,920	8,478	8,853
1st Quartile	4,960	4,838	1,108	2,026	853	1,043
3rd Quartile	64,797	62,097	42,805	45,031	34,708	35,850
Min	0	0	0	0	0	0
Max	100,000,000	100,000,000	165,961,836	84,218,080	100,587,359	93,149,370
Standard Deviation	957,471	917,727	815,313	718,594	687,023	673,442
# of Observations	226,604	265,916	333,424	310,737	316,846	311,365

Recoverable Amount at Default (*RAD*) - Performing Credits

(data in Euro)	2009-Q4	2010-Q4	2011-Q4	2012-Q4	2013-Q4	2014-Q2
Mean	140,985	134,401	102,090	103,736	92,487	94,053
Median	17,531	16,912	9,738	11,083	8,672	9,238
1st Quartile	4,882	4,803	821	1,825	729	1,010
3rd Quartile	66,387	63,215	41,075	43,831	36,589	38,106
Min	0	0	0	0	0	0
Max	100,000,000	100,000,000	92,204,480	84,218,080	100,587,359	93,149,370
Standard Deviation	1,008,590	961,366	802,870	753,925	719,517	713,778
# of Observations	197,065	233,593	288,955	256,488	257,834	249,471
% of all Obs.	*86.96%*	*87.84%*	*86.66%*	*82.54%*	*81.38%*	*80.12%*

Recoverable Amount at Default (*RAD*) - Unsecured Credits

(data in Euro)	2009-Q4	2010-Q4	2011-Q4	2012-Q4	2013-Q4	2014-Q2
Mean	133,107	127,622	79,151	72,454	59,147	60,886
Median	16,148	12,940	3,658	5,074	3,018	3,275
1st Quartile	3,888	2,725	0	409	10	30
3rd Quartile	60,336	51,381	25,823	23,517	16,561	17,743
Min	0	0	0	0	0	0
Max	100,000,000	100,000,000	165,961,836	84,218,080	100,587,359	93,149,370
Standard Deviation	1,101,655	1,148,354	927,692	773,308	745,597	716,838
# of Observations	128,143	114,410	162,447	127,098	127,906	123,437
% of all Obs.	*56.55%*	*43.02%*	*48.72%*	*40.90%*	*40.37%*	*39.64%*

The table reports time-series quarterly statistics of *Recoverable Amount at Default* (*RAD*) for the last quarter of each year in the sample. Observations are at credit-quarter level. Monetary values are in Euro. The top panel presents statistics for the overall credit portfolio. The middle panel reports statistics for the subsample of performing credits. The bottom panel summarizes statistics for the subsample of unsecured credits. *# of Observations* is the number of credits in the dataset in a given quarter. *% of all Obs.* is ratio of (i) *# of Observations* in a subsample (e.g. performing credits) and (ii) *# of Observations* of the all sample (top panel).

Table XII – Total Exposure at Default time series summary statistics (2009Q4-2014Q2)

Total Exposure at Default (*EAD*) - Overall Credit Portfolio

(data in Euro)	2009-Q4	2010-Q4	2011-Q4	2012-Q4	2013-Q4	2014-Q2
Mean	151,865	145,356	140,216	131,905	131,485	131,638
Median	16,376	15,900	15,504	13,953	13,286	13,276
1st Quartile	1,455	1,291	1,125	1,092	906	895
3rd Quartile	69,062	65,863	62,085	57,648	56,275	56,692
Min	0	0	0	0	0	0
Max	169,627,664	169,627,664	165,961,840	160,000,000	170,233,744	170,304,112
Standard Deviation	1,269,422	1,208,906	1,202,714	1,086,256	1,103,669	1,068,872
# of Observations	290,574	341,343	345,614	351,315	342,762	342,779

Total Exposure at Default (*EAD*) - Performing Credits

(data in Euro)	2009-Q4	2010-Q4	2011-Q4	2012-Q4	2013-Q4	2014-Q2
Mean	161,551	153,010	146,753	135,862	133,674	133,081
Median	16,654	16,038	15,494	13,072	11,842	11,848
1st Quartile	1,197	1,056	788	832	596	604
3rd Quartile	73,946	69,531	64,325	56,798	53,257	53,493
Min	0	0	0	0	0	0
Max	160,000,000	160,000,000	160,000,000	160,000,000	170,233,744	170,304,112
Standard Deviation	1,308,522	1,240,963	1,238,157	1,125,320	1,164,243	1,135,221
# of Observations	251,197	298,594	299,683	296,053	282,503	279,472
% of all Obs.	*86.45%*	*87.48%*	*86.71%*	*84.27%*	*82.42%*	*81.53%*

Total Exposure at Default (*EAD*) - Unsecured Credits

(data in Euro)	2009-Q4	2010-Q4	2011-Q4	2012-Q4	2013-Q4	2014-Q2
Mean	142,212	126,757	115,945	120,935	117,433	116,800
Median	10,041	5,211	3,996	6,974	6,050	5,750
1st Quartile	200	1	0	153	72	100
3rd Quartile	51,098	37,150	33,017	35,568	33,690	34,069
Min	0	0	0	0	0	0
Max	169,627,664	169,627,664	165,961,840	160,000,000	170,233,744	170,304,112
Standard Deviation	1,432,269	1,425,583	1,441,839	1,355,683	1,400,837	1,344,277
# of Observations	185,433	183,899	174,598	139,113	132,281	132,301
% of all Obs.	*63.82%*	*53.88%*	*50.52%*	*39.60%*	*38.59%*	*38.60%*

The table reports time-series quarterly statistics of *Total Exposure at Default* (*EAD*) for the last quarter of each year in the sample. Observations are at credit-quarter level. Monetary values are in Euro. The top panel presents statistics for the overall credit portfolio. The middle panel reports statistics for the subsample of performing credits. The bottom panel summarizes statistics for the subsample of unsecured credits. *# of Observations* is the number of credits in the dataset in a given quarter. *% of all Obs.* is ratio of (i) *# of Observations* in a subsample (e.g. performing credits) and (ii) *# of Observations* of the all sample (top panel).

Table XIII – Interest Rate Spread time series summary statistics (2009Q4-2014Q2)

Interest Rate Spread (*Spread*) - Overall Subsample of Credit Portfolio

(data in %)	2009-Q4	2010-Q4	2011-Q4	2012-Q4	2013-Q4	2014-Q2
Mean	1.15	1.32	1.51	1.88	2.34	2.54
Median	1.25	1.30	1.50	1.50	1.75	2.00
1st Quartile	0.00	0.85	1.00	0.95	1.10	1.20
3rd Quartile	1.50	1.80	2.00	2.50	3.50	4.10
Min	-1.88	-1.88	-1.88	-1.88	-1.88	-1.40
Max	5.65	7.01	8.00	8.75	8.75	8.75
Standard Deviation	0.88	0.94	1.11	1.64	1.90	1.96
# of Observations	43,232	77,241	82,027	86,946	83,424	81,562

Interest Rate Spread (*Spread*) - Performing Credits

(data in %)	2009-Q4	2010-Q4	2011-Q4	2012-Q4	2013-Q4	2014-Q2
Mean	1.13	1.31	1.51	1.89	2.37	2.58
Median	1.20	1.30	1.50	1.50	1.80	2.00
1st Quartile	0.00	0.80	0.99	0.95	1.10	1.20
3rd Quartile	1.50	1.80	2.00	2.50	3.75	4.20
Min	-1.88	-1.88	-1.88	-1.88	-1.88	-1.40
Max	5.65	7.00	8.00	8.75	8.75	8.75
Standard Deviation	0.87	0.94	1.11	1.65	1.90	1.95
# of Observations	41,195	73,007	77,323	80,401	75,801	73,951
% of all Observations	*95.29%*	*94.52%*	*94.27%*	*92.47%*	*90.86%*	*90.67%*

Interest Rate Spread (*Spread*) - Unsecured Credits

(data in %)	2009-Q4	2010-Q4	2011-Q4	2012-Q4	2013-Q4	2014-Q2
Mean	1.08	1.33	1.53	1.70	2.49	2.82
Median	1.00	1.30	1.50	1.40	2.00	2.65
1st Quartile	0.00	0.75	0.90	0.00	0.00	1.00
3rd Quartile	1.50	1.80	2.00	2.63	4.00	4.50
Min	0.00	0.00	0.00	-0.10	-0.10	-0.10
Max	5.65	7.00	8.00	8.75	8.75	8.75
Standard Deviation	0.96	1.00	1.17	1.90	2.19	2.22
# of Observations	3,993	11,739	13,295	15,748	12,325	11,451
% of all Observations	*9.24%*	*15.20%*	*16.21%*	*18.11%*	*14.77%*	*14.04%*

The table reports time-series quarterly statistics of *Interest Rate Spread* (*Spread*) for the last quarter of each year in the subsample, for which *Interest Rate* (*IR*) and thus *Spread* are disclosed. Observations are at credit-quarter level. *Spread* values are in %. The top panel presents statistics for the overall credit portfolio. The middle panel reports statistics for the subsample of performing credits. The bottom panel summarizes statistics for the subsample of unsecured credits. *# of Observations* is the number of credits in the dataset in a given quarter. *% of all Obs.* is ratio of (i) *# of Observations* in a subsample (e.g. unsecured credits) and (ii) *# of Observations* of the all sample (top panel).

Table XIV – Interest Rate time series summary statistics
(2009Q4-2014Q2)

Interest Rate - Overall Subsample of Credit Portfolio

(data in %)	2009-Q4	2010-Q4	2011-Q4	2012-Q4	2013-Q4	2014-Q2
Mean	3.31	3.32	3.84	3.43	3.52	3.69
Median	2.55	2.79	3.40	2.55	2.85	3.33
1st Quartile	2.22	2.34	2.95	1.87	1.75	1.91
3rd Quartile	4.10	3.90	4.50	4.75	5.00	5.14
Min	0.00	0.00	0.00	0.00	0.00	0.00
Max	9.96	21.25	21.25	20.90	16.90	16.90
Standard Deviation	1.61	1.44	1.34	2.12	2.05	2.01
# of Observations	43,232	77,241	82,027	86,946	83,424	81,562

Interest Rate - Performing Credits

(data in %)	2009-Q4	2010-Q4	2011-Q4	2012-Q4	2013-Q4	2014-Q2
Mean	3.30	3.30	3.83	3.43	3.53	3.70
Median	2.55	2.79	3.40	2.59	2.90	3.33
1st Quartile	2.22	2.34	2.95	1.87	1.78	1.95
3rd Quartile	4.10	3.86	4.46	4.75	5.00	5.13
Min	0.00	0.00	0.00	0.00	0.00	0.00
Max	9.96	21.25	21.25	20.90	16.90	16.90
Standard Deviation	1.60	1.43	1.33	2.11	2.02	1.97
# of Observations	41,195	73,007	77,323	80,401	75,801	73,951
% of all Observations	95.29%	94.52%	94.27%	92.47%	90.86%	90.67%

Interest Rate - Unsecured Credits

(data in %)	2009-Q4	2010-Q4	2011-Q4	2012-Q4	2013-Q4	2014-Q2
Mean	3.40	3.38	3.96	4.80	4.53	4.56
Median	2.65	2.80	3.44	4.37	4.23	4.33
1st Quartile	2.05	2.30	3.00	2.22	2.39	2.73
3rd Quartile	4.70	4.04	4.50	6.95	6.00	5.90
Min	0.00	0.00	0.00	0.00	0.00	0.00
Max	9.50	21.25	21.25	20.90	13.80	13.80
Standard Deviation	1.79	1.56	1.66	2.85	2.40	2.25
# of Observations	3,993	11,739	13,295	15,748	12,325	11,451
% of all Observations	9.24%	15.20%	16.21%	18.11%	14.77%	14.04%

The table reports time-series quarterly statistics of *Interest Rate* (*IR*) for the last quarter of each year in the subsample, for which *IR* is disclosed. Observations are at credit-quarter level. *IR* values are in %. The top panel presents statistics for the overall credit portfolio. The middle panel reports statistics for the subsample of performing credits. The bottom panel summarizes statistics for the subsample of unsecured credits. *# of Observations* is the number of credits in the dataset in a given quarter. *% of all Obs.* is ratio of (i) *# of Observations* in a subsample (e.g. unsecured credits) and (ii) *# of Observations* of the all sample (top panel).

4.2 Identification Strategy

The analysis needs to distinguish firms according to their exposure to the design of bankruptcy proceedings (*Exposure*), consistently to the theoretical framework. Indeed, we cannot examine the effects of a Bankruptcy Law reform on the credit market's conditions by simply comparing such conditions before and after each reform, because the resulting differences could even reflect unobserved economic states. Therefore, the literature identifies two main sources of heterogeneity in the exposure:

(i)   firms' heterogeneity with respect to the risk of default: the higher the risk of default, the higher the exposure, because probability of entering a bankruptcy procedure becomes larger as firms approach financial distress (Panetta, et al., 2009; Rodano, et al., 2014);

(ii)   firms' heterogeneity with the respect to the level of efficiency across courts: the more efficient a court, the faster bankruptcy resolution and the lower the exposure to the Bankruptcy Law. Creditors lending to firms which operate in more efficient judicial districts may apply more favourable conditions because, in case of in-court bankruptcy proceeding, their expectation is to resolve bankruptcies faster (Jappelli, et al., 2005; Gennaioli, 2013; Ponticelli, 2013).

The focus of this work is on firms' heterogeneity with respect to the level of efficiency across courts. We use two different measures of efficiency:
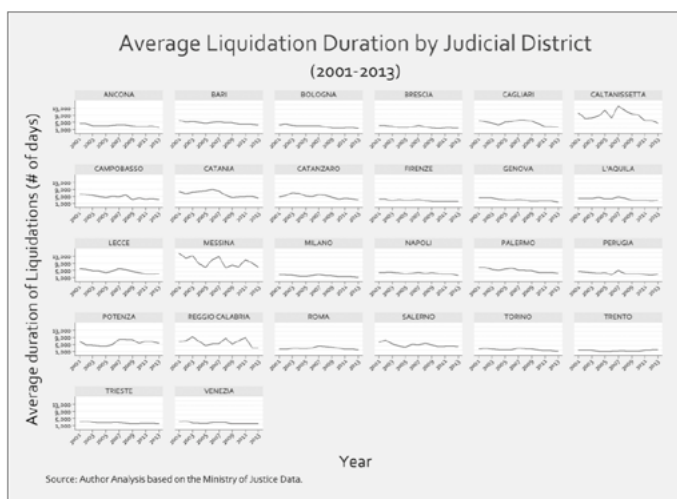
(i)   average duration of a liquidation proceeding (*Liquidation_Time*): it is the average number of quarters that a liquidation lasts from inception to final distribution of proceedings to creditors.

(ii)   average duration of examination of a filing for a liquidation proceeding (*Filing_Time*): it measures the average number of quarters that a court takes to examine a filing for a liquidation and to decide whether to start the proceeding or not.

Henceforth, we refer to the first measure as liquidation duration and to the second as filing duration.

Both the measures are monitored by the Ministry of Justice Statistical Office at judicial district level on a yearly basis. The use of duration of Liquidation as a proxy for the efficiency of courts is consistent with the prevailing literature (Giacomelli, et al., 2013; Rodano, et al.,

2014), although part of the literature relies on the duration of civil trials rather than specifically on bankruptcy proceedings (Jappelli, et al., 2005). The duration of filings as a proxy for court efficiency is instead a novel contribution to the literature; the main benefit is that filings' length relates only to court capabilities, as it is not influenced by third parties (e.g., administrator) or by firm-specific characteristics (e.g. industry). In the rest of the book, for the sake of the synthesis, we call the two identification strategies also "liquidation identification" and "filing identification".

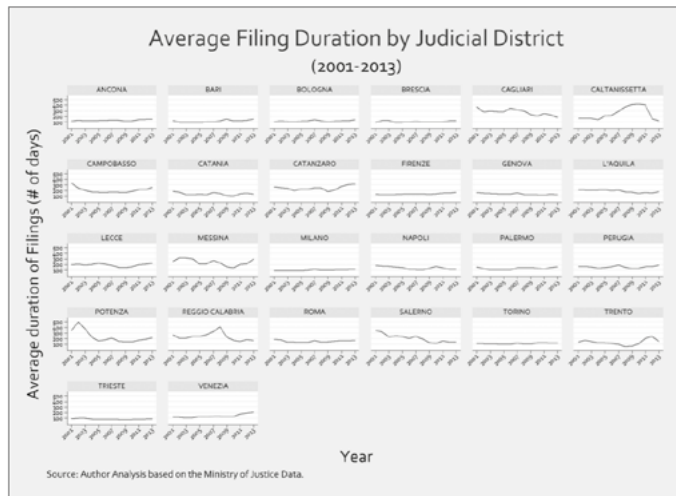*Figure 6 – Average liquidation duration by judicial district (2001-2013)*

The figure plots the yearly average duration of liquidation proceedings (*Liquidation_Time*) by judicial district, from 2001 to 2013. Duration is reported in number of days. Source of raw data: Ministry of Justice.

Our measures of judicial efficiency are advantageous for several reasons. First, judges in Italy are appointed with a centralized selection procedure (Bianco, et al., 2007), and thus the courts' composition and capabilities are exogenous to firms and predetermined at the time of each reform; besides, bankruptcies are treated by specialized courts whose efficiency is thus not affected by other civil or criminal trials. Second, there is a significant geographic heterogeneity in the duration of bankruptcy proceedings (both liquidations and filings), as discussed in § 3.2. Third, the criterion we use to measure judicial efficiency is the same for all the firms (and credits) in the country and is predetermined at the start of a bankruptcy proceeding. Fourth, borrowers and lenders have no option to choose the court to which file for a proceeding. Moreover, Italian law has rigid provisions aimed at

making strategic relocation for judicial purposes very cumbersome for firms (§ 3.2); hence, court-shopping is very difficult for firms.

We check that duration of both liquidations and examination of filings for Liquidation are time-varying, as shown by Figures 6 and 7. For this reason, we do not take the duration at a single point in time, but rather we compute an average duration for a period preceding the B.L. reforms. Specifically, we report results for two periods: 2001-2004 and 2001-2009. The first period comes before the reforming season of the B.L. starting in 2005 (§ 3.1); the second period captures the effects of earlier reforms (2005, 2006 and 2008) but it is unaffected by the reforms covered in the sample (2010, 2012 and 2013). Figures display also that cross-sectional dispersion is persistent over time.

Figure 7 – Average filing duration by judicial district (2001-2013)

The figure plots the yearly average duration of examination of filings for Liquidation (*Filing_Time*) by judicial district, from 2001 to 2013. Duration is reported in number of days. Source of raw data: Ministry of Justice.

Potential concerns about our identification strategy are related to other sources of variation of court efficiency, such as: environmental issues, reforms of the judicial system, indirect effects of bankruptcy law reforms, and measurement error. As for the first concern (environmental issues), we include in our econometric specification fixed effects that rule out such a potential problem (e.g., *Province*); they are described with more details in § 4.3. As for the reforms of the judicial system, we check with legal experts that the two main reforms introduced between 2004 and 2014 are related to civil trials but not

to bankruptcy proceedings[6]. Someone may argue that changing civil trials might indirectly affect the duration of bankruptcy proceedings when a borrower going through a proceeding is contemporaneously part of a civil trial; we solve this potential issue using as a measure of efficiency also filing duration, which is unaffected by any open trial, as well as adopting two different periods to measure liquidation and filing duration, one of which (2001-2004) is before any change to the civil trials' procedures happening in the sample period. As for the third concern (indirect effects of bankruptcy law reforms), we face it by using average duration of liquidations and of filings either (i) before the 2005, thus earlier than the start of the reforming season (§ 3.1), and (ii) before the 2010, hence earlier than the reforms covered by our sample (i.e. 2010, 2012 and 2013 reform). Finally, as for the measurement error, we believe it is mitigated by having duration of liquidations as well as of filings as proxy for judicial efficiency; besides, we measure the duration not a single point in time but rather taking the average of two periods, thus reducing the measurement error potential bias.

4.3 Econometric Specification

The econometric analysis is structured under a difference-in-difference framework, which allows to isolate the effects of changing creditor rights on the bank credit market. We run the analysis according to two different setups: (i) a first main setup which captures the "average" effects of a change in creditor rights; (ii) a second alternative setup that estimates separately the effects of each Bankruptcy Law reform in the sample (2010, 2012, and 2013). The main setup is described in the next paragraph (§ 4.3.1); the alternative setup is summarized in the paragraph focusing on the individual reforms § 4.5.

4.3.1 Average effect specification

According to our main econometric approach, the estimation takes advantage of CRI as a substitute of the classical dummy variables tracking a treatment (i.e., a reform) under the DID framework.

---

[6] These reforms of the civil trials' procedures are introduced in 2006 and 2009.

The econometric analysis is set up as follows:

$$Y_{ijt} = \alpha + \beta Exposure_j + \kappa CRI_t + \gamma\left(Exposure_j \cdot CRI_t\right)$$
$$+\eta\left(Exposure_j \cdot Cycle_t\right) + X_{ijt}\Omega + D_{jt}\Phi + F_{j(t-1)}\Lambda + MacroFE + \varepsilon_{ijt} \quad (1)$$

Y_{ijt} is the output variable of interests (e.g., *RAD* or *Spread*) for the credit i to firm j at time t, defined at quarterly frequency from the last quarter of 2009 to the second quarter of 2014. Volume variables are in log-terms.

The time-invariant indicator capturing a firm exposure to the reforms ($Exposure_j$) is constructed in two ways, according to the identification strategy. Under the first identification approach, $Exposure_j$ is the average duration of examination of filings for Liquidation (*Filing_Time*) observed in the judicial district in charge of a potential bankruptcy case for a given firm j. According to the second identification, $Exposure_j$ is measured based on the average liquidation duration in the same judicial district (*Liquidation_Time*). For both the measures of $Exposure_j$, we acknowledge they are time varying. To capture this variability, we estimate *Filing_Time* and *Liquidation_Time* of each judicial district as the mean over two different periods: (i) 2001-2004, before the new series of reform begins; (ii) 2001-2009, before the reforms in the sample (2010, 2012 and 2013) are implemented.

The variable capturing the change of creditors' rights over time is CRI_t, which represents the Total CRI across all the four bankruptcy proceedings a lender might have to face, if a SME defaulted. The coefficient κ measures the overall average relationship between the level of CRI and the bank credit market's variable of interest, thus estimating effects of bankruptcy shocks common to all firms. Theory suggests that, as creditors' rights are more favourable (and CRI higher), interest rates should decrease, while volumes of credit available in the economy should increase. Therefore, we expect the coefficient to be negative when the output variable is a price effect (e.g. *Spread*), and positive when the output variable is a volume effect (e.g. *RAD*).

The interaction between CRI_t and the firm exposure to the Bankruptcy Law reforms ($Exposure_j$) captures the differential effects of changing creditors' rights. The coefficient (γ) on the interaction is the DID estimate for the Total CRI and represents our main object of interest. It identifies the impact on the outcome variable (e.g., *Spread*) of modifying by one unit the CRI, according to the firm exposure to

the reforms, and measures how the difference between the output variable across exposure groups (i.e., firms operating in different judicial districts) varies relative to the pre-reforms period. We expect the sign of the coefficient to switch, depending on the output variable. In the case of price effects, reforms decreasing (increasing) CRI should produce a rise (reduction) of interest rates and thus the corresponding coefficient should be negative. On the contrary, in the case of volumes of credit, reforms reducing (augmenting) CRI should produce a reduction (growth) of volume of credit available to firms; thus, the corresponding coefficient should be positive. Hence, the coefficient captures the differential impact of a reform for credits toward firms more exposed to the Bankruptcy Law, which under our hypothesis are firms operating in less efficient judicial districts.

Debtors differentially exposed to the reforms can face time-varying credit conditions driven also by the credit cycle, which represents an alternative channel through which credit conditions apply to borrowers. The analysis controls for this possibility, by incorporating an interaction term between the exposure to each reform ($Exposure_j$) and a time varying measure of credit cycle ($Cycle_t$), in order to separate the effects of B.L. reforms from the potential conflicting effects of the credit cycle affecting all the firms in the economy (Rodano, et al., 2014). The measure of the credit cycle ($Cycle_t$) is based on loan officers' expectations of credit standards applied to SMEs in Italy. It is taken from the Bank Lending Survey of the European Central Bank, concerning expected credit standards specifically applicable to Italian SMEs in each quarter following the survey.

The econometric specification includes macro fixed effects ($MacroFE$) of two kinds: time ($Q \cdot Y$) and geography ($Province$). We include time fixed effects for each period in the sample ($Q \cdot Y$), to account for aggregate and macroeconomic shocks, as well as underlying time trends, that might have affected credit demand and supply despite the reforms. We incorporate geography fixed effects ($Province$) to rule out unobserved heterogeneity across different areas of the country, which may influence credit demand or supply as well as firms' characteristics, other than court efficiency. This implies that the internal validity of the DID estimators cannot be influenced by common shocks, or from time-invariant differences in the firms' exposure to the reforms.

The model controls even for several credit- and firm-specific characteristics. X_{ijt} is a vector containing the characteristics of the credit i

to firm j at time t, usually studied in the literature, such as: maturity (*Maturity*), collateral (*Guarantee*), and default status (*Status*). D_{jt} is a vector containing firms' structural characteristics, such as *Industry*. $F_{j(t-1)}$ is a vector of firm's financing and operating characteristics measured in the last available fiscal year prior to the quarter of analysis, such as: bank debt over total net financial debt, log of revenues, and log of asset. The column vectors Ω, Φ, and Λ collect all coefficients for the variables composing vectors X_{ijt}, D_{jt}, and $F_{j(t-1)}$, respectively. Appendix B and § 4.1.2 provide a comprehensive description of all the variables included in the analysis.

Finally, we cluster the error term, ε_{ijt}, at firm level as we acknowledge that shocks at single credit level may be contemporaneous within a debtor.

4.4 Main Results

The empirical analysis studies the outcomes on bank credit market of B.L. reforms both in terms of non-price and price effects. As for the former, the variables of interest are *Total Exposure at Default* (*EAD*) and *Recoverable Amount at Default* (*RAD*). As for the latter, the outcome variables are *Interest Rate* (*IR*) and *Interest Rate Spread* (*Spread*). This section outlines the main results of the work focusing on *RAD* and *Spread*; equivalent conclusions are obtained for *EAD* and *IR* whose empirical analysis is presented in the online appendix.

As a preliminary analysis, we run regressions aggregated at national level and at firm level, to assess whether there is a significant relationship between CRI and the output variables of interest.

Table XV and Table XVI report regression results according to equation (1), aggregating data at national level, for average log Recoverable Amount at Default (*rad*) and Interest Rate Spread (*Spread*), respectively. The findings support the hypothesis that CRI is positively linked to volume of credits, and negatively associated to credit spreads. Indeed, every unitary improvement of CRI is associated with an increase of 1.8-2.0% in the average recoverable amount at default and a decrease of 13.1-13.9 basis points in the spread.

Table XV – Recoverable Amount at Default (rad) regressions under average effect specification – National Level

Independent Variable	National Level (1)		National Level (2)	
Creditor Rights Index (CRI)	0.018 ***	(0.001)	0.020 ***	(0.005)
Credit Cycle			0.182 *	(0.099)
Exposure (Exp)				
Exposure x CRI				
Credit controls (X)	No		No	
Firm structural control (D)	No		No	
Firm fin. / oper. controls (F)	No		No	
Quarter x Year FE	No		No	
Province control	No		No	
# of Observations	19		19	
Adjusted R-squared	0.387		0.462	

The table reports OLS estimation of the effects of the Bankruptcy Law reforms on log-value of *Recoverable Amount at Default* (*rad*), under average effect specification according to equation (1) in the text. The specification includes only variables that can be aggregated at national level. We aggregate the output variable by summing up all observations in a given quarter. Appendix B provides a detailed description of all the variables. Standard errors are reported in parenthesis. Significance level: ***, **, and * denote significance at 1%, 5%, and 10% p-value levels, respectively.

Table XVI – Interest Rate Spread (Spread) regression results under average effect specification – National Level

Independent Variable	National Level (1)		National Level (2)	
Creditor Rights Index (CRI)	-0.131 ***	(0.023)	-0.139 ***	(0.023)
Credit Cycle			-0.659	(0.464)
Exposure (Exp)				
Exposure x CRI				
Credit controls (X)	No		No	
Firm structural control (D)	No		No	
Firm fin. / oper. controls (F)	No		No	
Quarter x Year FE	No		No	
Province control	No		No	
# of Observations	19		19	
Adjusted R-squared	0.640		0.660	

The table reports OLS estimation of the effects of the Bankruptcy Law reforms on *Interest Rate Spread* (*Spread*), under average effect specification according to equation (1) in the text. The specification includes only variables that can be aggregated at national level. We aggregate the output variable by computing the average value per each quarter. Appendix B provides a detailed description of all the variables. Standard errors are reported in parenthesis. Significance level: ***, **, and * denote significance at 1%, 5%, and 10% p-value levels, respectively.

Consistently, we find a statistically and economically relevant relationship between creditor rights and credit conditions, when we combine data at firm-level, as Table XVII and Table XVIII show, respectively for *rad* and *Spread*. On average, we find that at debtor level the CRI is positively associated to an increase of 5.6-5.8% in the average recoverable amount at default; at the same time, an increase in CRI is linked to a reduction in the credit spread, around 12 basis points per annum. More interestingly, DID coefficients (*Exp·*CRI) support the hypothesis that firms more exposed to a reform suffer (benefit) more a reduction (increase) in creditor rights. Indeed, a unitary increase in CRI causes a differential increase of 1.2-1.3% in the recoverable amount at default for companies operating in less efficient judicial districts, for every additional quarter of average filing duration. Correspondingly, interest rate spreads respond to a unitary increase of CRI with a differential reduction around 1 basis point for SMEs operating under slower courts for every additional quarter of filing duration; such a reduction for those companies is on top of the average relationship between CRI and credit spreads.

The remaining of this section is organized as follows, either for non-price and price effects. First, we discuss the overall findings under our main specification. Second, we segment the sample in the least and most risky firms, to see how reforms impact differentially group of firms having a diverse risk profile. Third, we analyse whether reforms have distinct consequences depending on guarantees that collateralize each credit. Finally, we check whether the effects of a reform are more or less pronounced depending on the age of the credits.

The first table in the section reports all the coefficients on the input variables. The subsequent tables, for the sake of the synthesis, focus only on the main coefficients of interests, but all the control variables described in the specification are always included in the empirical analysis. We cannot make causal inferences about the control variables but note that their coefficients and possible interpretations are in line with previous empirical studies (Strahan, 1999; Davidenko & Franks, 2008).

Table XVII – Recoverable Amount at Default (rad) regressions under average effect specification – Firm Level

Independent Variable	Filing Duration Identification (Average 2001-2009)							
	(1)		(2)		(3)		(4)	
Exposure (Exp)			-0.722 ***	(0.037)	-0.738 ***	(0.038)	-0.697 ***	(0.214)
Creditor Rights Index (CRI)	0.074 ***	(0.001)	0.058 ***	(0.002)	0.058 ***	(0.002)	0.056 ***	(0.002)
Exposure x CRI			0.012 ***	(0.001)	0.013 ***	(0.001)	0.012 ***	(0.001)
Exposure x Credit Cycle					0.053 **	(0.025)	0.025	(0.025)
Credit controls (X)	No		No		No		No	
Firm structural control (D)	No		No		No		Yes	
Firm fin. / oper. controls (F)	No		No		No		Yes	
Quarter x Year FE	Yes		Yes		Yes		Yes	
Province control	No		No		No		Yes	
# of Observations	2,343,864		2,343,530		2,343,530		1,606,365	
Adjusted R-squared	0.007		0.012		0.012		0.328	

The table reports OLS estimation of the effects of the Bankruptcy Law reforms on log-value of *Recoverable Amount at Default* (*rad*), under average effect specification according to equation (1) in the text. The specification includes only variables that can be aggregated at firm level. We aggregate the output variable by summing up all observations in a given quarter within any debtor. Appendix B provides a detailed description of all the variables. Standard errors are reported in parenthesis. Significance level: ***, **, and * denote significance at 1%, 5%, and 10% p-value levels, respectively. Results are consistent to the use of robust standard errors, as well as to the exclusion of Quarter times Year Fixed Effect ($Q \cdot Y$).

Table XVIII – Interest Rate Spread (Spread) regression results under average effect specification – Firm Level

Independent Variable	Filing Duration Identification (Average 2001-2009)							
	(1)		(2)		(3)		(4)	
Exposure (Exp)			1.479 ***	(0.047)	1.492 ***	(0.047)	0.332	(0.306)
Creditor Rights Index (CRI)	-0.138 ***	(0.002)	-0.126 ***	(0.003)	-0.127 ***	(0.003)	-0.126 ***	(0.003)
Exposure x CRI			-0.010 ***	(0.002)	-0.011 ***	(0.002)	-0.011 ***	(0.002)
Exposure x Credit Cycle					-0.049	(0.031)	-0.085 ***	(0.032)
Credit controls (X)	No		No		No		No	
Firm structural control (D)	No		No		No		Yes	
Firm fin. / oper. controls (F)	No		No		No		Yes	
Quarter x Year FE	Yes		Yes		Yes		Yes	
Province control	No		No		No		Yes	
# of Observations	1,073,727		1,073,669		1,073,669		768,876	
Adjusted R-squared	0.075		0.144		0.144		0.259	

The table reports OLS estimation of the effects of the Bankruptcy Law reforms on *Interest Rate Spread* (*Spread*), under average effect specification according to equation (1) in the text. The specification includes only variables that can be aggregated at firm level. We aggregate the output variable by computing the average value per each quarter within any debtor. Appendix B provides a detailed description of all the variables. Standard errors are reported in parenthesis. Significance level: ***, **, and * denote significance at 1%, 5%, and 10% p-value levels, respectively. Results are consistent to the use of robust standard errors, as well as to the exclusion of Quarter times Year Fixed Effect ($Q \cdot Y$).

4.4.1 Non-price effects

A) <u>Average Effect Specification – Overall sample</u>

Table XIX presents the DID regression results for the log of *Recoverable Amount at Default* (*rad*) under the average effect specification (§ 4.3.1). Columns (1) and (2) assume firms' exposure to B.L.

is equal, respectively, to the average 2001-2004 and 2001-2009 duration of examination of filings for Liquidation (*Filing_Time*); instead, in columns (3) and (4) *Exposure* is equal, respectively, to the average 2001-2004 and 2001-2009 duration of liquidation proceedings (*Liquidation_Time*).

Consistently with the theory, we observe that Total CRI is on average positively related with the size of credit as measured by the recoverable amount at default. Under filing identification, an increase in one unit of the Total CRI corresponds to an increase between 2.5% (average 2001-2009 duration) and 3.1% (average 2001-2004 duration) of the *RAD*; according to liquidation identification, a unit increase of the Total CRI implies an average growth of *RAD* between 2.0% (2001-2009 duration) and 2.2% (2001-2004 duration). All these results are both economically and statistically significant.

If firms' exposure to the design of bankruptcy proceeding increases, the quantity of credit in the market towards such firms is more influenced by a change in creditor rights, after controlling for credit's, firms' and structural characteristics. For instance, column (1) shows that every additional quarter of duration of filings' examination causes a positive differential increase by approximately 1.5% in the average recoverable amount at default as estimated by the DID methodology; it means that if Total CRI moves negatively by one unit, a credit towards a firm, whose court takes 1 quarter longer to assess a filing for Liquidation, suffers an average decrease in size by 1.5% more than a similar credit to a firm whose judicial district takes one quarter less to examine the filing itself. This implies that effects of a bankruptcy law reform are amplified by court efficiency: effects are stronger in the less efficient judicial districts.

If we look at the efficiency as measured by liquidation duration, we can confirm what we have just described: the higher a borrower's exposure to a reform (i.e., the less efficient a court in charge for the borrower's eventual bankruptcy), the stronger the differential positive (negative) effect of one unit of increase (decrease) of the *CRI* on the recoverable amount of credit. These results are revealed under any identification and are all highly statistically significant. For instance, in columns (3) and (4), we report that a reform improving by one the *CRI* produces an additional increase of the average credit size equal to 0.1% for every quarter of incremental duration of liquidation proceedings; this corresponds to a differential effect of 2.33% for credits

toward firms whose judicial district's efficiency is at the third quartile, relative to credits toward SMEs whose district's efficiency is at the first quartile. If we consider the average cross-sectional difference in duration of liquidations between North-West and South of Italy, our results suggest that an increase (decrease) of CRI has an additional benefit (loss) of 2.16% for the latter relative to the former. The additional consequence is not given by the reform itself but rather due to its enforcement coming from a different level of court efficiency within the country. The aggregate amount of bank credit in Italy approximates 1,908.3 billion Euro at the end of 2014; 1% of it equals 19.0 billion. Our DID estimates due to heterogeneity in efficiency across courts have thus a meaningful economic magnitude when brought at an aggregate level.

The findings show that a reduction of creditor rights is of course associated to negative impacts, either on average for the credits in the economy and incrementally for SMEs facing more enforcement risk: everything else being equal, firms suffer most the contraction of credit when creditor rights are weakened, if they are located in a less efficient judicial district. Interestingly, the described effects are not limited to non-performing but include performing credits, and thus impact even firms not in financial distress. Considering that reforms from 2005 onward have mainly reduced Total CRI (§ 3.3), our results imply that the credit contraction has been stronger for firms operating in less efficient judicial districts, due to a poorer law enforcement; this is likely also connected to the reduction in the average / median size of *RAD* observed over time (§ 4.1.3)

In conclusion, following a strengthening (weakening) of its rights as a creditor, a bank tends to increase (reduce) its lending in less efficient judicial districts more than in other districts; hence, the quality of law enforcement has an important influence on the developing and the functioning of bank credit market. These results are consistent with what the literature has discovered at an aggregate level: the amount of lending is positively associated with court efficiency; the stronger the court efficiency, the bigger the size of the credit market (Jappelli, et al., 2005).

Table XIX – Total Recoverable Amount at Default (rad) regression results under average effect specification

Independent Variable	Filing Duration Identification						Liquidation Duration Identification					
	2001-2004			2001-2009			2001-2004			2001-2009		
	(1)			(2)			(3)			(4)		
Exposure (Exp)	-1.246	*	(0.685)	-1.468	**	(0.747)	5.479		(4.519)	-0.031		(59.512)
Mortgage Guarantee	1.034	***	(0.035)	1.034	***	(0.035)	1.035	***	(0.035)	1.035	***	(0.035)
Pledge Guarantee	1.174	***	(0.022)	1.174	***	(0.022)	1.174	***	(0.022)	1.174	***	(0.022)
Confidi Guarantee	0.230	***	(0.011)	0.230	***	(0.011)	0.231	***	(0.011)	0.231	***	(0.011)
Personal Guarantee	0.281	***	(0.012)	0.281	***	(0.012)	0.280	***	(0.012)	0.281	***	(0.012)
Other Guarantee	0.525	***	(0.178)	0.524	***	(0.178)	0.525	***	(0.178)	0.525	***	(0.178)
Non Performing (Sofferenza)	-0.869	***	(0.091)	-0.869	***	(0.091)	-0.868	***	(0.091)	-0.868	***	(0.091)
Non Performing (Incaglio)	-0.164	***	(0.047)	-0.164	***	(0.047)	-0.164	***	(0.047)	-0.164	***	(0.047)
Non Performing (Restructured)	0.602	***	(0.107)	0.602	***	(0.107)	0.603	***	(0.107)	0.603	***	(0.107)
Non Performing (Past Due)	-0.560	***	(0.027)	-0.559	***	(0.027)	-0.559	***	(0.027)	-0.559	***	(0.027)
Non Cash	-0.900	***	(0.064)	-0.900	***	(0.064)	-0.900	***	(0.064)	-0.900	***	(0.064)
New Facility	-0.126	***	(0.015)	-0.126	***	(0.015)	-0.126	***	(0.015)	-0.126	***	(0.015)
Medium-Term Maturity	0.534	***	(0.065)	0.535	***	(0.065)	0.534	***	(0.065)	0.534	***	(0.065)
Long-Term Maturity	1.264	***	(0.066)	1.264	***	(0.066)	1.264	***	(0.066)	1.264	***	(0.066)
Log Revenues	0.005		(0.010)	0.005		(0.010)	0.005		(0.010)	0.005		(0.010)
Log Assets	0.237	***	(0.021)	0.237	***	(0.021)	0.237	***	(0.021)	0.237	***	(0.021)
Leverage	0.000	**	(0.000)	0.000	**	(0.000)	0.000	**	(0.000)	0.000	**	(0.000)
EBITDA Margin	0.000	*	(0.000)	0.000	*	(0.000)	0.000	*	(0.000)	0.000	*	(0.000)
Bank Debt / Total Liabilities	0.000		(0.000)	0.000		(0.000)	0.000		(0.000)	0.000		(0.000)
Bank Debt / Net Debt	0.326	***	(0.050)	0.326	***	(0.050)	0.326	***	(0.050)	0.326	***	(0.050)
Exposure x Credit Cycle	-0.005		(0.018)	-0.001		(0.022)	0.000		(0.001)	0.000		(0.001)
Creditor Rights Index (CRI)	0.031	***	(0.003)	0.025	***	(0.004)	0.022	***	(0.005)	0.020	***	(0.005)
Exposure x CRI	0.015	***	(0.002)	0.020	***	(0.003)	0.001	***	(0.000)	0.001	***	(0.000)
Industry Control	Yes			Yes			Yes			Yes		
Facility Nature Control	Yes			Yes			Yes			Yes		
Segment Size Control	Yes			Yes			Yes			Yes		
Quarter x Year FE	Yes			Yes			Yes			Yes		
Province Control	Yes			Yes			Yes			Yes		
# of Observations	3,477,624			3,477,624			3,477,624			3,477,624		
Adjusted R-squared	0.283			0.283			0.283			0.283		

The table reports OLS estimation of the effects of the Bankruptcy Law reforms on log-value of *Recoverable Amount at Default* (*rad*), under the main specification reported in equation (1) in the text. In columns (1) and (2) the exposure to the reforms is based on duration of examination of filings for Liquidation (§ 4.2). In column (1) *Exposure* is the 2001-2004 average duration of filings (*Filing_Time*) in the judicial district where a firm is headquartered; in column (2) *Exposure* is the 2001-2009 average *Filing_Time*. In columns (3) and (4) the exposure to the reforms is based on duration of liquidations (§ 4.2). In column (3), *Exposure* is the 2001-2004 average duration of liquidations (*Liquidation_Time*) in the judicial district where a firm is headquartered; in column (4), *Exposure* is the 2001-2009 average *Liquidation_Time*. Appendix B provides a detailed description of all the variables. Robust, firm-clustered standard errors are reported in parenthesis. Significance level: ***, **, and * denote significance at 1%, 5%, and 10% p-value levels, respectively.

B) Level of risk

Table XX presents regressions, for the outcome variable *rad*, where we split the sample in credits toward the least and most risky SMEs. Least risky SMEs are those whose average rating falls into the first tercile of firms' distribution based on *Rating*; most risky firms are those whose average rating, instead, lies in the third tercile of the *Rating* distribution. Columns (1), (2) and (5) to (8) use filing duration (*Filing_Time*) as a measure of exposure to reforms (*Exposure*). Columns (3), (4) and (9) to (12) assume liquidation duration (*Liquidation_Time*) as exposure. The top panel reports results where *Exposure* is measured over 2001-2004 (before the starting of the "reforming season"); the bottom panel presents results where *Exposure* is estimated over 2001-2009 (before the three reforms implemented in our sample period).

Table XX – Recoverable Amount at Default (rad) regression results splitting the sample according to the firms' level of risk

Independent Variable	Filing Duration Identification (2001-2004)			Liquidation Duration Identification (2001-2004)		
	All (1)	Lowest Risk (5)	Highest Risk (6)	All (3)	Lowest Risk (9)	Highest Risk (10)
Exposure (Exp)	-1.246 * (0.685)	-0.153 (0.190)	0.339 (0.562)	5.479 (4.519)	-0.010 (0.010)	-5.619 (3.743)
Creditor Rights Index (CRI)	0.031 *** (0.003)	0.047 *** (0.006)	0.035 *** (0.007)	0.022 *** (0.005)	0.043 *** (0.008)	0.022 ** (0.009)
Exposure x CRI	0.015 *** (0.002)	0.005 (0.004)	0.018 *** (0.004)	0.001 *** (0.000)	0.000 (0.000)	0.001 *** (0.000)
Exposure x Credit Cycle	-0.005 (0.018)	-0.093 *** (0.034)	0.019 (0.031)	0.000 (0.001)	-0.003 * (0.002)	-0.002 (0.002)
Credit controls (X)	Yes	Yes	Yes	Yes	Yes	Yes
Firm structural control (D)	Yes	Yes	Yes	Yes	Yes	Yes
Firm fin. / oper. controls (F)	Yes	Yes	Yes	Yes	Yes	Yes
Quarter x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Province control	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	3,477,624	1,141,636	955,179	3,477,624	1,141,636	955,179
Adjusted R-squared	0.283	0.305	0.297	0.283	0.305	0.297
Independent Variable	**Filing Duration Identification (2001-2009)**			**Liquidation Duration Identification (2001-2009)**		
	All (2)	Lowest Risk (7)	Highest Risk (8)	All (4)	Lowest Risk (11)	Highest Risk (12)
Exposure (Exp)	-1.468 ** (0.747)	-0.246 (0.224)	0.279 (0.615)	-0.031 (59.51)	-0.009 (0.011)	-2.160 (1.431)
Creditor Rights Index (CRI)	0.025 *** (0.004)	0.042 *** (0.007)	0.029 *** (0.008)	0.020 *** (0.005)	0.043 *** (0.008)	0.018 * (0.010)
Exposure x CRI	0.020 *** (0.003)	0.008 (0.005)	0.022 *** (0.005)	0.001 *** (0.000)	0.000 (0.000)	0.001 *** (0.000)
Exposure x Credit Cycle	-0.001 (0.022)	-0.114 *** (0.043)	0.013 (0.037)	0.000 (0.001)	-0.005 ** (0.002)	-0.001 (0.002)
Credit controls (X)	Yes	Yes	Yes	Yes	Yes	Yes
Firm structural control (D)	Yes	Yes	Yes	Yes	Yes	Yes
Firm fin. / oper. controls (F)	Yes	Yes	Yes	Yes	Yes	Yes
Quarter x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Province control	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	3,477,624	1,141,636	955,179	3,477,624	1,141,636	955,179
Adjusted R-squared	0.283	0.305	0.297	0.283	0.305	0.297

The table reports OLS estimation of the effects of the Bankruptcy Law reforms on log-value of *Recoverable Amount at Default* (*rad*), splitting the sample between the least risky (*Lowest Risk*) and the most risky (*Highest Risk*) credits. Regressions follow the average effect specification, according to equation (1) in the text. In columns (1), (2), (5), (6), (7), and (8), the exposure to the reforms is based on filing identification (§ 4.2), where *Exposure* is the average duration of examination of filings for Liquidation in the judicial district where a firm is headquartered (*Filing_Time*). In columns (3), (4), (9), (10), (11), and (12), the exposure to the reforms is based on liquidation identification (§ 4.2), where *Exposure* is the average duration of liquidation proceedings (*Liquidation_Time*). Top panel and bottom panel report regressions where *Exposure* is, respectively, the 2001-2004 and the 2001-2009 average filing or liquidation duration. Regressions (1), (2), (3), and (4) are run on the overall sample and are equal to the regressions identically numbered in previous tables for the corresponding outcome variable (*rad*). Regressions (5), (7), (9), and (11) subsample credits towards lowest risk firms, whose *Rating* falls into the first tercile of the rating distribution. Regressions (6), (8), (10), and (12) subsample credits towards highest risk firms, whose *Rating* lies in the third tercile of the rating distribution. All regressions include control variables described in the text (§ 4.1.2): credit characteristics (X_{ijt}), firm's structural characteristics (D_{jt}), firm's financial and operating characteristics ($F_{j(t-1)}$), macro controls (Quarter times Year Fixed Effect ($Q \cdot Y$) and *Province*), and Credit Cycle control ($Exposure_j \cdot Cycle_t$). Appendix B provides description of all the variables. Robust, firm-clustered standard errors are reported in parenthesis. Significance level: ***, **, and * denote significance at 1%, 5%, and 10% p-value levels, respectively.

The positive association between Total CRI and the average size of credit, measured as recoverable amount at default, is confirmed across the sample both for riskier and less risky credits. For example, under 2001-2009 average filings' identification (columns (7) and (8)) Total CRI is positively associated with an increase of 4.2% and 2.9% in the average recoverable amount at default, respectively for credits towards low risk and high risk firms. Results are equivalent when switching to liquidation identification and / or changing to the 2001-2004 average exposure computation. Safer credits appear to have a stronger association with *CRI* relative to riskier ones; this might be linked to the fact that the market excludes (opens to) riskier credits as creditor rights decrease (rise). Indeed, as the portfolio composition modifies in correspondence to a *CRI* change, the relative riskiness

of a credit varies too: if *CRI* shrinks, a credit that is relatively safer becomes riskier in relative terms, because the originally riskier positions are ruled out by the market; then, the bank adjusts its exposure by reducing such credit more than proportionally relative to facilities that were originally perceived as riskier. In other words, *ex-ante* a bank takes into account the risk of the firms given a certain legislative framework and thus a bank takes a smaller exposure, all else being equal, towards riskier firms. When the legislative environment changes, *ex-post*, the same bank has to review its portfolio and the credits more affected by the review itself are those towards less risky firms, because evaluation of risk associated to them modifies according to the change in creditor rights.

The differential average impact of a reform, estimated by the DID coefficient on the interaction between *Exposure* and *CRI*, is always stronger for riskier credits thank for less risky ones. The DID coefficient for the former is between 2.66 and 3.91 times bigger than the latter, depending on the identification strategy. For instance, under 2001-2009 filing identification, the coefficient is 0.022 for riskier credits and 0.008 for less risky ones. Moreover, the DID coefficient on the interaction between *Exposure* and *CRI* is statistically more significant for the sample of riskier borrowers. Results show that riskier credits in a given judicial districts suffer more the differential impact linked to court efficiency. Therefore, the riskiness of a company exacerbates the effects of different quality of law enforcement which by itself already influences the impacts of a given reform, as we have described; to the general fact that a reduction (increase) of *CRI* contributes more to the contraction (expansion) of available bank credit in the less efficient judicial districts, relative to the more virtuous courts, risk adds an additional contraction (expansion) to the size of credit. Such a finding is consistent with the view that more risk means more exposure to creditor rights and thus to the Bankruptcy Law (Panetta, et al., 2009; Rodano, et al., 2014).

C) Guarantees

Table XXI presents regressions, for the outcome variable *rad*, in which we segment the sample in unsecured and secured credits. Unsecured credits are those which have no collateral; secured ones, instead, have at least one guarantee amongst those tracked by the variable *Guarantee*[7]. Columns (1), (2) and (13) to (16) use filing du-

---

[7] Please refer to § 4.1.2 and Appendix B for variables' definitions.

ration (*Filing_Time*) as a measure of exposure to reforms (*Exposure*). Columns (3), (4) and (17) to (20) adopt liquidation duration (*Liquidation_Time*) as exposure. The top panel reports results where *Exposure* is measured over 2001-2004, while in the bottom panel *Exposure* is estimated over 2001-2009.

Table XXI – Recoverable Amount at Default (rad) regression results splitting the sample between secured and unsecured credits

Independent Variable	Filing Duration Identification (2001-2004)			Liquidation Duration Identification (2001-2004)		
	All	Secured	Unsecured	All	Secured	Unsecured
	(1)	(13)	(14)	(3)	(17)	(18)
Exposure (Exp)	-1.246 * (0.685)	-0.863 *** (0.299)	-0.357 (0.537)	5.479 (4.519)	0.000 (44.060)	-7.333 ** (3.491)
Creditor Rights Index (CRI)	0.031 *** (0.003)	0.014 *** (0.004)	0.014 ** (0.007)	0.022 *** (0.005)	0.007 (0.005)	0.002 (0.010)
Exposure x CRI	0.015 *** (0.002)	0.008 *** (0.002)	0.051 *** (0.005)	0.001 *** (0.000)	0.000 *** (0.000)	0.003 *** (0.000)
Exposure x Credit Cycle	-0.005 (0.018)	-0.033 * (0.017)	0.022 (0.047)	0.000 (0.001)	-0.003 *** (0.001)	0.007 *** (0.002)
Credit controls (X)	Yes	Yes	Yes	Yes	Yes	Yes
Firm structural control (D)	Yes	Yes	Yes	Yes	Yes	Yes
Firm fin. / oper. controls (F)	Yes	Yes	Yes	Yes	Yes	Yes
Quarter x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Province control	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	3,477,624	2,170,369	1,307,255	3,477,624	2,170,369	1,307,255
Adjusted R-squared	0.283	0.345	0.209	0.283	0.345	0.208

Independent Variable	Filing Duration Identification (2001-2009)			Liquidation Duration Identification (2001-2009)		
	All	Secured	Unsecured	All	Secured	Unsecured
	(2)	(15)	(16)	(4)	(19)	(20)
Exposure (Exp)	-1.468 ** (0.747)	-0.987 *** (0.328)	-0.772 (0.593)	-0.031 (59.51)	0.026 (76.503)	-2.836 ** (1.340)
Creditor Rights Index (CRI)	0.025 *** (0.004)	0.011 ** (0.004)	-0.005 (0.008)	0.020 *** (0.005)	0.005 (0.005)	-0.006 (0.010)
Exposure x CRI	0.020 *** (0.003)	0.010 *** (0.003)	0.068 *** (0.006)	0.001 *** (0.000)	0.001 *** (0.000)	0.003 *** (0.000)
Exposure x Credit Cycle	-0.001 (0.022)	-0.049 ** (0.022)	0.073 (0.058)	0.000 (0.001)	-0.004 *** (0.001)	0.006 ** (0.003)
Credit controls (X)	Yes	Yes	Yes	Yes	Yes	Yes
Firm structural control (D)	Yes	Yes	Yes	Yes	Yes	Yes
Firm fin. / oper. controls (F)	Yes	Yes	Yes	Yes	Yes	Yes
Quarter x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Province control	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	3,477,624	2,170,369	1,307,255	3,477,624	2,170,369	1,307,255
Adjusted R-squared	0.283	0.345	0.209	0.283	0.345	0.209

The table reports OLS estimation of the effects of the Bankruptcy Law reforms on log-value of *Recoverable Amount at Default* (*rad*), splitting the sample between secured credits (*Secured*) and unsecured credits (*Unsecured*). Regressions adopt the average effect specification, according to equation (1) in the text. In columns (1), (2), (13), (14), (15), and (16), the exposure to the reforms is based on filing identification (§ 4.2), where *Exposure* is the average duration of examination of filings for Liquidation in the judicial district where a firm is headquartered (*Filing_Time*). In columns (3), (4), (17), (18), (19), and (20), the exposure to the reforms is based on liquidation identification (§ 4.2), where *Exposure* is the average duration of liquidation proceedings (*Liquidation_Time*). Top panel and bottom panel report regressions where *Exposure* is, respectively, the 2001-2004 and the 2001-2009 average filing or liquidation duration. Regressions (1), (2), (3), and (4) are based on the overall sample and are equal to the regressions identically numbered in previous tables for the corresponding outcome variable (*rad*). Regressions (13), (15), (17), and (19) subsample secured credits. Regressions (14), (16), (18), and (20) subsample unsecured credits. All regressions include control variables described in the text (§ 4.1.2): credit characteristics (X_{ijt}), firm's structural characteristics (D_{jt}), firm's financial and operating characteristics ($F_{j(t-1)}$), macro controls (Quarter times Year Fixed Effect ($Q \cdot Y$) and *Province*), and Credit Cycle control (*Exposure_j·Cycle_t*). Appendix B provides description of all the variables. Robust, firm-clustered standard errors are reported in parenthesis. Significance level: ***, **, and * denote significance at 1%, 5%, and 10% p-value levels, respectively.

The positive association between Total CRI and the recoverable amount at default, which we find in the overall sample, tend to be confirmed for both unsecured and secured credits. Results are statistically significant, not for all the identification approaches though. For instance, under 2001-2004 filing identification, a unitary increase in *CRI* is positively associated with an augment of *RAD* by 1.4% either for secured and unsecured credits (columns (13) and (14)).

Unsecured credits reflect most the differential impact due to the quality of law enforcement. In fact, the DID coefficients on the inter-action between *Exposure* and *CRI* is always greater for unsecured than for secured credits. Such coefficients for unsecured facilities range be-tween 5.57 and 6.68 times more than the corresponding coefficients for secured ones. For example, under 2001-2004 filing identification, the coefficient is equal to 0.008 for secured (column (13)) and to 0.051 for unsecured (columns (14)). It means that, on average, a credit toward a firm, operating in a judicial district which takes one quarter longer to examine a filing for Liquidation, benefits (suffers) an unitary increase (decrease) of *CRI* by an amount of 1.5% greater than a com-parable credit toward a firm headquartered in a more efficient tribunal (column (1)). Yet, if the credit is unsecured, the DID impact of hetero-geneity in law enforcement is stronger and equal to 5.1%; on the con-trary, such an impact is on average smaller (0.8%) for a secured credit. Hence, the non-collateralization of a credit amplifies the differential effect that court efficiency has on recoverable amount of credit, fol-lowing a change in creditor rights. Unsecured credits benefit or suffer most the enforcement of a change in creditor rights because, when a company goes through a bankruptcy proceeding, unsecured credits are those most impacted by courts' intervention; indeed, recovery of such credits does not depend on any collateral but exclusively on the effectiveness of the bankruptcy proceeding to restructure or liquidate efficiently the business. These results are statistically significant and confirmed economically under any identification strategy.

D) New and old credits

Table XXII presents regressions where the outcome variable is the log value of recoverable amount at default (*rad)* and we segment the sample in new and old credits. New credits are those issued in a giv-en quarter; on the contrary, old credits have been issued before that quarter. Columns (1), (2) and (21) to (24) adopt filing duration (*Fil-ing_Time*) as a measure of exposure to reforms (*Exposure*). Columns (3), (4) and (25) to (28) use liquidation duration (*Liquidation_Time*) as exposure. The top panel reports results where *Exposure* is measured over 2001-2004, while in the bottom panel *Exposure* is estimated over 2001-2009.

Creditor rights appear to be more important for new than for old credits, because the estimated coefficient on *CRI* is of one order big-ger for the former relative to the latter; this is confirmed and statistical-

ly significant for all the identification strategies. For example, under 2001-2009 filing identification, one unit of increase in CRI is on average associated with 12.8% increase in the average *RAD* of new credits, compared to a 3.3% growth of *RAD* for old credits. These findings suggest that creditor rights matter more from an *ex-ante* perspective; the bank analyses it when evaluating a credit application in order to decide which amount to lend given the rights it can activate to resolve an eventual distress of the borrower. Such an interpretation of coefficient on *CRI* might also explain why we observe a significant drop in the average / median size of credit over time (refer to Table XI and Table XII); in fact, the repeated contractions of CRI experienced in the last ten years may have affected on the average size of credit because estimation results suggest that newer credits are on average smaller than older credits following a reduction in creditor rights.

Table XXII – Recoverable Amount at Default (rad) regression results distinguishing between new and old credits

Independent Variable	Filing Duration Identification (2001-2004)			Liquidation Duration Identification (2001-2004)		
	All (1)	New (21)	Old (22)	All (3)	New (25)	Old (26)
Exposure (Exp)	-1.246 * (0.685)	-0.842 (0.968)	-1.161 * (0.645)	5.479 (4.519)	3.068 (6.440)	5.613 (4.271)
Creditor Rights Index (CRI)	0.031 *** (0.003)	0.134 *** (0.009)	0.038 *** (0.003)	0.022 *** (0.005)	0.150 *** (0.013)	0.028 *** (0.005)
Exposure x CRI	0.015 *** (0.002)	0.014 ** (0.006)	0.011 *** (0.002)	0.001 *** (0.000)	0.000 (0.000)	0.001 *** (0.000)
Exposure x Credit Cycle	-0.005 (0.018)	0.036 (0.081)	0.016 (0.018)	0.000 (0.001)	0.009 * (0.005)	0.001 (0.001)
Credit controls (X)	Yes	Yes	Yes	Yes	Yes	Yes
Firm structural control (D)	Yes	Yes	Yes	Yes	Yes	Yes
Firm fin. / oper. controls (F)	Yes	Yes	Yes	Yes	Yes	Yes
Quarter x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Province control	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	3,477,624	344,540	3,133,084	3,477,624	344,540	3,133,084
Adjusted R-squared	0.283	0.358	0.290	0.283	0.358	0.290

Independent Variable	Filing Duration Identification (2001-2009)			Liquidation Duration Identification (2001-2009)		
	All (2)	New (23)	Old (24)	All (4)	New (27)	Old (28)
Exposure (Exp)	-1.468 ** (0.747)	-1.072 (1.060)	-1.357 * (0.703)	-0.031 (59.51)	-0.015 (.)	0.011 (.)
Creditor Rights Index (CRI)	0.025 *** (0.004)	0.128 *** (0.011)	0.033 *** (0.004)	0.020 *** (0.005)	0.134 *** (0.013)	0.028 *** (0.005)
Exposure x CRI	0.020 *** (0.003)	0.020 *** (0.007)	0.015 *** (0.003)	0.001 *** (0.000)	0.001 * (0.000)	0.001 *** (0.000)
Exposure x Credit Cycle	-0.001 (0.022)	0.071 (0.100)	0.026 (0.022)	0.000 (0.001)	0.004 (0.005)	0.001 (0.001)
Credit controls (X)	Yes	Yes	Yes	Yes	Yes	Yes
Firm structural control (D)	Yes	Yes	Yes	Yes	Yes	Yes
Firm fin. / oper. controls (F)	Yes	Yes	Yes	Yes	Yes	Yes
Quarter x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Province control	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	3,477,624	344,540	3,133,084	3,477,624	344,540	3,133,084
Adjusted R-squared	0.283	0.358	0.290	0.283	0.358	0.290

The table reports OLS estimation of the effects of the Bankruptcy Law reforms on log-value of *Recoverable Amount at Default* (*rad*), splitting the sample between new credits (*New*) and old credits (*Old*), where *New* is a dummy variable tracking whether a credit is issued in a given quarter. Regressions follow the average effect specification, according to equation (1) in the text. In columns (1), (2), (21), (22), (23), and (24), the exposure to the reforms is based on filing identification (§ 4.2), where *Exposure* is the average duration of examination of filings for Liquidation in the judicial district where a firm is headquartered (*Filing_Time*). In columns (3), (4), (25), (26), (27), and (28), the exposure to the reforms is based on liquidation identification (§ 4.2), where *Exposure* is the average duration of liquidation proceedings (*Liquidation_Time*). Top panel and bottom panel report regressions where *Exposure* is, respectively, the 2001-2004 and the 2001-2009 average filing or liquidation duration. Regressions (1), (2), (3), and (4) are based on the overall sample and are equal to the regressions identically numbered in previous tables for the corresponding outcome variable (rad). Regressions (21), (23), (25) and (27) subsample new credits. Regressions (22), (24), (26), and (28) subsample old credits. All regressions include control variables described in the text (§ 4.1.2): credit characteristics (X_{ijt}), firm's structural characteristics (D_{jt}), firm's financial and operating characteristics $(F_{j(t-1)})$, macro controls (Quarter times Year Fixed Effect $(Q \cdot Y)$ and *Province*), and Credit Cycle control $(Exposure_j \cdot Cycle_t)$. Appendix B provides description of all the variables. Robust, firm-clustered standard errors are reported in parenthesis. Significance level: ***, **, and * denote significance at 1%, 5%, and 10% p-value levels, respectively.

The analysis provides evidence that the size of new credits and old credits is similarly affected by the enforcement risk coming from different level of courts' efficiency. In fact, the DID coefficient for the interaction between *CRI* and *Exposure* is always positive and of similar magnitude for new and old credits, although tend to be slightly higher for the former. For example, under 2001-2004 filing identification, the DID coefficient is equal to 1.4% for new (column (21)) and to 1.1% for old credits (column (22). The interpretation is that enforcement risk is not linked to the age of credit itself, because DID estimate of the court efficiency is similar between new and old facilities, contrary to risk or guarantees characterizing a credit. All the identification strategies confirm these results.

Our results about the size of new credits, as captured by *RAD*, should be interpreted with caution, because in our dataset we do not observe application for credits but just issued facilities. It may indeed be the case that a bank refuses more applications of credits, following the reduction in creditor rights due to the reforms being analysed. If this were the case, the aggregate lending in the market would be affected by the higher refusal rate of credit applications, but we would not capture this effect because we do not have data about such applications.

4.4.2 Price effects

A)   <u>Average Effect Specification – Overall</u>

Table XXIII presents the DID regression results for variable *Interest Rate Spread* (*Spread*) under the main econometric specification. Columns (1) and (2) assume firms' exposure to B.L. is equal, respectively, to the average 2001-2004 and 2001-2009 duration of examinations of filings for Liquidation (*Filing_Time*); instead, in columns (3) and (4) *Exposure* corresponds to the average 2001-2004 and 2001-2009 duration of liquidation proceedings (*Liquidation_Time*), respectively.

Consistently with the theory, we observe that Total Creditor Rights Index (CRI) is on average negatively associated with the price of bank credit as measured by interest rate spreads (*Spread*). Under 2001-2004 filing identification, an increase in one unit of the Total CRI corresponds to a reduction of *Spread* around 14.3 bps (column (1)). Similarly, according to 2001-2004 liquidation identification, a unitary rise of the Total CRI is associated to a contraction of *Spread* close to 13.1 bps (column (3)). Results are similar and always statistically significant

under other identification strategies. From an economic standpoint, 14 bps approximates 8.2% of the average cross-sectional spread in the sample; hence, the association between creditor rights and spread is relevant.

As SMEs' exposure to Bankruptcy Law increases, DID estimation shows that the price of bank credit is more affected by a change in the creditor rights, after controlling for credit's, firms' and structural characteristics. For example, in column (2), every additional quarter of duration of filings' assessment implies a negative differential of approximately 0.8 bps in interest rate spreads, following a positive unitary change of *CRI*; it means that if Total CRI moves down by one unit, a credit toward a firm whose court takes on average a quarter longer to examine a filing, suffers a growth of interest rate by 0.8 bps more than a similar credit to an SME whose court takes shorter to assess the filing. These findings suggest that consequences of bankruptcy law reforms are magnified by court efficiency: effects on pricing conditions of Bank Credit are larger in the less efficient judicial districts. The DID impact is economically material: 0.8 bps correspond to the 6.37% of the average cross-sectional difference in *Spread* between the judicial district of Milan and Brescia, ranking respectively second and fourth most efficient courts according to the 2001-2009 filing duration.

Table XXIII – Interest Rate Spread (Spread) regression results under average effect specification

Independent Variable	Filing Duration Identification				Liquidation Duration Identification			
	2001-2004		2001-2009		2001-2004		2001-2009	
	(1)		(2)		(3)		(4)	
Exposure (Exp)	0.386	(0.240)	0.510 *	(0.269)	0.081	(119.9)	-0.048	(85.187)
Creditor Rights Index (CRI)	-0.143 ***	(0.004)	-0.140 ***	(0.005)	-0.131 ***	(0.006)	-0.132 ***	(0.006)
Exposure x CRI	-0.005 *	(0.003)	-0.008 **	(0.004)	-0.001 ***	(0.000)	-0.001 ***	(0.000)
Exposure x Credit Cycle	-0.076 ***	(0.015)	-0.093 ***	(0.020)	-0.003 ***	(0.001)	-0.004 ***	(0.001)
Credit controls (X)	Yes		Yes		Yes		Yes	
Firm structural control (D)	Yes		Yes		Yes		Yes	
Firm financial / operating controls (F)	Yes		Yes		Yes		Yes	
Quarter x Year FE	Yes		Yes		Yes		Yes	
Province control	Yes		Yes		Yes		Yes	
# of Observations	1,063,856		1,063,856		1,063,856		1,063,856	
Adjusted R-squared	0.547		0.547		0.547		0.547	

The table reports OLS estimation of the effects of the Bankruptcy Law reforms on *Interest Rate Spread* (*Spread*), under average effect specification according to equation (1) in the text. In columns (1) and (2) the exposure to the reforms is based on rating identification (§ 4.2). In columns (1) and (2), the exposure to the reforms is based on filing identification (§ 4.2), where *Exposure* is the average duration of examination of filings for Liquidation in the judicial district where a firm is headquartered (*Filing_Time*); the average is computed over 2001-2004 and 2001-2009, respectively, for regressions (1) and (2). In columns (3) and (4), the exposure to the reforms is based on liquidation identification (§ 4.2), where *Exposure* is the average duration of liquidation proceedings in the judicial district where a firm is headquartered (*Liquidation_Time*); the average is computed over 2001-2004 and 2001-2009, respectively, for regressions (3) and (4). Control variables are described in the text (§ 4.1.2) and are grouped in credit characteristics controls (X_{jt}), firm's structural characteristics controls (D_{jt}), firm's financial and operating characteristics controls ($F_{j(t-1)}$), macro controls (Quarter times Year Fixed Effect ($Q \cdot Y$) and *Province*), and Credit Cycle control (*Exposure$_j \cdot$Cycle$_t$*). Appendix B provides a detailed description of all the variables. Robust, firm-clustered standard errors are reported in parenthesis. Significance level: ***, **, and * denote significance at 1%, 5%, and 10% p-value levels, respectively.

If we study court efficiency as captured by the duration of liquidation proceedings, we can confirm that efficiency amplifies the outcomes of law reforms: the higher a firm's exposure to a reform (i.e., the less efficient a court), the larger the differential negative (positive) effect of a unitary increase (decrease) of *CRI* on the interest rate spread. Results are confirmed under any identification and all highly statistically significant. For instance, we find that a reform improving by one the Total CRI leads to an additional decrement of the average spread approximating 0.1 bps for every quarter of incremental duration of liquidation proceedings; all else being equal, this corresponds to a supplementary reduction in spread of 1.4 bps, every year, for the average credit toward a firm operating in the South of the country relative to a firm operating in the North-East, due to heterogeneity in court efficiency across the two areas. The DID effects are not driven by the reform itself, whose average effect is captured by the coefficient on *CRI*, but rather linked to the different level of court efficiency within the same country. Hence, results support the hypothesis that court efficiency exacerbates the effects of a bankruptcy law reform; specifically, in less efficient judicial districts the creditors' reaction tends to be stronger due to poorer enforcement on which they can rely.

The example we have just discussed is related to the increase of creditor rights. Symmetrically, we can interpret our findings in the sense that a reduction of creditor rights is associated to negative impacts for the credit market, thus rising *Spread*. Firms suffer most the increase in the price of bank credit, when creditor rights are weakened, if they operate in a less efficient judicial district. The reforms introduced in Italy from 2005 onward (and especially 2010 and 2012 reforms) have substantially reduced Total CRI. Our results show that the reduction in *CRI* is associated with an increase in the interest rate spread; moreover, such an increase is larger for credits toward firms which are headquartered in judicial districts whose efficiency is poorer. Therefore, weak law enforcement exacerbates the increase in the price of bank credit that follows a contraction of creditor rights.

B) <u>Level of risk</u>

Table XXIV presents regressions for the output variable *Spread*, in which we split the sample in credits toward the least and most risky SMEs. Like for the non-price effects, least risky SMEs are those whose average *Rating* falls into the first tercile of firm's distribution based on rating, while most risky firms are those whose average *Rating* lays

in the third tercile of the distribution. Columns (1), (2) and (5) to (8) use filing duration (*Filing_Time*) as a measure of exposure to reforms (*Exposure*). Columns (3), (4) and (9) to (12) adopt though liquidation duration (*Liquidation_Time*) as exposure. The top panel reports results where *Exposure* is measured over 2001-2004 (before the starting of the "reforming season"); the bottom panel presents results where *Exposure* is estimated over 2001-2009 (before the three reforms in our sample period).

Table XXIV – Interest Rate Spread (Spread) regression results splitting the sample according to the firms' level of risk

Independent Variable	Filing Duration Identification (2001-2004)			Liquidation Duration Identification (2001-2004)		
	All (1)	Lowest Risk (5)	Highest Risk (6)	All (3)	Lowest Risk (9)	Highest Risk (10)
Exposure (Exp)	0.386 (0.240)	0.076 (0.174)	0.629 * (0.354)	0.081 (119.9)	0.009 (0.010)	0.030 .
Creditor Rights Index (CRI)	-0.143 *** (0.004)	-0.147 *** (0.006)	-0.131 *** (0.009)	-0.131 *** (0.006)	-0.145 *** (0.009)	-0.118 *** (0.012)
Exposure x CRI	-0.005 * (0.003)	0.013 ** (0.005)	-0.025 *** (0.006)	-0.001 *** (0.000)	0.000 (0.000)	-0.001 *** (0.000)
Exposure x Credit Cycle	-0.076 *** (0.015)	-0.026 (0.023)	-0.136 *** (0.031)	-0.003 *** (0.001)	-0.001 (0.001)	-0.005 ** (0.002)
Credit controls (X)	Yes	Yes	Yes	Yes	Yes	Yes
Firm structural control (D)	Yes	Yes	Yes	Yes	Yes	Yes
Firm fin. / oper. controls (F)	Yes	Yes	Yes	Yes	Yes	Yes
Quarter x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Province control	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	1,063,856	351,623	306,587	1,063,856	351,623	306,587
Adjusted R-squared	0.547	0.570	0.580	0.547	0.570	0.580

Independent Variable	Filing Duration Identification (2001-2009)			Liquidation Duration Identification (2001-2009)		
	All (2)	Lowest Risk (7)	Highest Risk (8)	All (4)	Lowest Risk (11)	Highest Risk (12)
Exposure (Exp)	0.510 * (0.269)	0.102 (0.233)	0.770 * (0.399)	-0.048 (85.18)	0.011 (0.011)	0.196 (0.791)
Creditor Rights Index (CRI)	-0.140 *** (0.005)	-0.147 *** (0.008)	-0.126 *** (0.010)	-0.132 *** (0.006)	-0.146 *** (0.009)	-0.114 *** (0.012)
Exposure x CRI	-0.008 ** (0.004)	0.013 * (0.007)	-0.030 *** (0.007)	-0.001 *** (0.000)	0.001 * (0.000)	-0.002 *** (0.000)
Exposure x Credit Cycle	-0.093 *** (0.020)	-0.033 (0.032)	-0.158 *** (0.038)	-0.004 *** (0.001)	-0.001 (0.001)	-0.007 *** (0.002)
Credit controls (X)	Yes	Yes	Yes	Yes	Yes	Yes
Firm structural control (D)	Yes	Yes	Yes	Yes	Yes	Yes
Firm fin. / oper. controls (F)	Yes	Yes	Yes	Yes	Yes	Yes
Quarter x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Province control	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	1,063,856	351,623	306,587	1,063,856	351,623	306,587
Adjusted R-squared	0.547	0.570	0.580	0.547	0.570	0.580

The table reports OLS estimation of the effects of the Bankruptcy Law reforms on *Interest Rate Spread* (*Spread*), splitting the sample between the least risky (*Lowest Risk*) and the most risky (*Highest Risk*) credits. Regressions follow the average effect specification, according to equation (1) in the text. In columns (1), (2), (5), (6), (7), and (8), the exposure to the reforms is based on filing identification (§ 4.2), where *Exposure* is the average duration of examination of filings for *Liquidation* in the judicial district where a firm is headquartered (*Filing_Time*). In columns (3), (4), (9), (10), (11), and (12), the exposure to the reforms is based on liquidation identification (§ 4.2), where *Exposure* is the average duration of liquidation proceedings (*Liquidation_Time*). Top panel and bottom panel report regressions where *Exposure* is, respectively, the 2001-2004 and the 2001-2009 average filing or liquidation duration. Regressions (1), (2), (3), and (4) are run on the overall sample and are equal to the regressions identically numbered in previous tables for the corresponding outcome variable (*Spread*). Regressions (5), (7), (9), and (11) subsample credits towards lowest risk firms, whose *Rating* falls into the first tercile of the rating distribution. Regressions (6), (8), (10), and (12) subsample credits towards highest risk firms, whose *Rating* lies in the third tercile of the rating distribution. All regressions include control variables described in the text (§ 4.1.2): credit characteristics (X_{ijt}), firm's structural characteristics (D_{jt}), firm's financial and operating characteristics ($F_{j(t-1)}$), macro controls (Quarter times Year Fixed Effect ($Q \cdot Y$) and *Province*), and Credit Cycle control (*Exposure$_j$·Cycle$_t$*). Appendix B provides description of all the variables. Robust, firm-clustered standard errors are reported in parenthesis. Significance level: ***, **, and * denote significance at 1%, 5%, and 10% p-value levels, respectively.

On average, less risky firms are slightly more sensitive to the level of creditors' rights. Although the average negative association between Total CRI and *Spread* looks similar for riskier and safer firms, ranging between 11.4 bps and 14.7 bps depending on identification,

we find that the association is always stronger for less risky firms than for riskier ones. For instance, under 2001-2009 filing identification, we find that a unitary increase in *CRI* is linked to a 14.7 bps decrease in *Spread*, which is 16.73% larger than the corresponding effect for riskier firms (12.6 bps) and 5.44% greater than the overall sample (14.0 bps). Results are consistent and statistically robust for all the identification strategies. These suggests a sort of convexity in the association between CRI and risk profile of SMEs.

Evidence on the differential average impact of B.L. reforms, estimated by the DID coefficient on the interaction between *Exposure* and *CRI*, is always stronger and more statistically significant for highest risk firms, both relative to less risky companies and to the overall sample. Indeed, the differential negative (positive) impact on *Spread* of a unitary increment (decrement) of *CRI* due to cross-sectional heterogeneity in judicial proficiency is of one order larger for riskier firms than for the overall sample, according to all the identification strategies. For instance, under 2001-2009 filing identification the DID coefficient is equal to 0.8 bps for the overall sample (column (2)), while to 3.0 bps for riskiest companies (column (8)). This hints that on average, following a unitary reduction of *CRI*, a credit towards a firm operating in a less efficient judicial district suffers an additional increase of 0.8bps in the spread charged by a bank, for every quarter of additional time that the court takes to examine a filing relative to the average time taken by other courts. Moreover, such an additional increase is much stronger for riskier SMEs because the additional rise in spread goes up to 3.0 bps for every quarter of longer filing duration.

In conclusion, the riskiness of a company exacerbates the effects of different quality of law enforcement on the price of bank credit. To the general fact that a reduction (increase) of *CRI* contributes to the rise (drop) of bank interest rate spread further in the less efficient judicial districts, relative to the more virtuous, risk adds an additional growth (decline) to the price of credit. Again, this corroborates the hypothesis that more risk implies higher exposure to creditor rights and thus to the Bankruptcy Law, as we find for the non-price consequences of Bankruptcy Law reforms.

   C) Guarantees

Table XXV presents regressions, for the outcome variable *Spread*, in which we segment the sample in unsecured and secured credits. Unsecured credits are those which have no collateral; secured ones,

though, have at least one guarantee amongst those tracked by the variable *Guarantee*[8]. Columns (1), (2) and (13) to (16) adopt filing duration (*Filing_Time*) as a measure of exposure to reforms (*Exposure*). Columns (3), (4) and (17) to (20) assume liquidation duration (*Liquidation_Time*) as exposure. The top panel reports results where *Exposure* is measured over 2001-2004, while in the bottom panel *Exposure* is estimated over 2001-2009.

Table XXV – Interest Rate Spread (Spread) regression results splitting the sample between secured and unsecured credits

Independent Variable	Filing Duration Identification (2001-2004)			Liquidation Duration Identification (2001-2004)		
	All (1)	Secured (13)	Unsecured (14)	All (3)	Secured (17)	Unsecured (18)
Exposure (Exp)	0.386 (0.240)	0.539 *** (0.142)	2.089 *** (0.527)	0.081 (119.9)	0.015 (81.19)	-0.024 (·)
Creditor Rights Index (CRI)	-0.143 *** (0.004)	-0.140 *** (0.004)	-0.151 *** (0.010)	-0.131 *** (0.006)	-0.124 *** (0.006)	-0.171 *** (0.014)
Exposure x CRI	-0.005 * (0.003)	-0.002 (0.003)	-0.056 *** (0.008)	-0.001 *** (0.000)	-0.001 *** (0.000)	-0.002 *** (0.000)
Exposure x Credit Cycle	-0.076 *** (0.015)	-0.089 *** (0.015)	-0.079 (0.050)	-0.003 *** (0.001)	-0.004 *** (0.001)	-0.001 (0.003)
Credit controls (X)	Yes	Yes	Yes	Yes	Yes	Yes
Firm structural control (D)	Yes	Yes	Yes	Yes	Yes	Yes
Firm fin. / oper. controls (F)	Yes	Yes	Yes	Yes	Yes	Yes
Quarter x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Province control	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	1,063,856	909,009	154,847	1,063,856	909,009	154,847
Adjusted R-squared	0.547	0.537	0.616	0.547	0.537	0.615

Independent Variable	Filing Duration Identification (2001-2009)			Liquidation Duration Identification (2001-2009)		
	All (2)	Secured (15)	Unsecured (16)	All (4)	Secured (19)	Unsecured (20)
Exposure (Exp)	0.510 * (0.269)	0.653 *** (0.167)	2.543 *** (0.594)	-0.048 (85.18)	-0.003 (49.27)	-1.295 (1.227)
Creditor Rights Index (CRI)	-0.140 *** (0.005)	-0.138 *** (0.005)	-0.133 *** (0.012)	-0.132 *** (0.006)	-0.127 *** (0.006)	-0.146 *** (0.014)
Exposure x CRI	-0.008 ** (0.004)	-0.004 (0.004)	-0.070 *** (0.010)	-0.001 *** (0.000)	-0.001 *** (0.000)	-0.002 *** (0.000)
Exposure x Credit Cycle	-0.093 *** (0.020)	-0.110 *** (0.020)	-0.076 (0.062)	-0.004 *** (0.001)	-0.006 *** (0.001)	-0.002 (0.003)
Credit controls (X)	Yes	Yes	Yes	Yes	Yes	Yes
Firm structural control (D)	Yes	Yes	Yes	Yes	Yes	Yes
Firm fin. / oper. controls (F)	Yes	Yes	Yes	Yes	Yes	Yes
Quarter x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Province control	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	1,063,856	909,009	154,847	1,063,856	909,009	154,847
Adjusted R-squared	0.547	0.537	0.616	0.547	0.537	0.616

The table reports OLS estimation of the effects of the Bankruptcy Law reforms on *Interest Rate Spread* (*Spread*), splitting the sample between secured credits (*Secured*) and unsecured credits (*Unsecured*). Regressions adopt the average effect specification, according to equation (1) in the text. In columns (1), (2), (13), (14), (15), and (16), the exposure to the reforms is based on filing identification (§ 4.2), where *Exposure* is the average duration of examination of filings for Liquidation in the judicial district where a firm is headquartered (*Filing_Time*). In columns (3), (4), (17), (18), (19), and (20), the exposure to the reforms is based on liquidation identification (§ 4.2), where *Exposure* is the average duration of liquidation proceedings (*Liquidation_Time*). Top and bottom panel report regressions where *Exposure* is, respectively, the 2001-2004 and the 2001-2009 average filing or liquidation duration. Regressions (1), (2), (3), and (4) are based on the overall sample and are equal to the regressions identically numbered in previous tables for the corresponding outcome variable (*Spread*). Regressions (13), (15), (17), and (19) subsample secured credits. Regressions (14), (16), (18), and (20) subsample unsecured credits. All regressions include control variables described in the text (§ 4.1.2): credit characteristics (X_{ijt}), firm's structural characteristics (D_{jt}), firm's financial and operating characteristics ($F_{j(t-1)}$), macro controls (Quarter times Year Fixed Effect ($Q \cdot Y$) and *Province*), and Credit Cycle control ($Exposure_j \cdot Cycle_t$). Appendix B provides description of all the variables. Robust, firm-clustered standard errors are reported in parenthesis. Significance level: ***, **, and * denote significance at 1%, 5%, and 10% p-value levels, respectively.

Total Creditor Rights Index plays a more relevant role for unsecured than for secured credits; this is confirmed by the coefficient on *CRI* which is slightly more negative for unsecured credits according to all the identification strategies, but 2001-2009 filing identification

---

[8]   Please refer to § 4.1.2 and Appendix B for variables' definitions.

where the coefficients are almost identical for the two categories. In general, the results are more clear-cut and statistically significant under liquidation identification. For instance, under 2001-2004 liquidation identification, our estimates show that the negative relation between *CRI* and *Spread* is equal to -17.1 bps for unsecured credits (column (18)) and to -12.4 bps for secured ones (column (17)). These outcomes may be linked to the fact that guarantees, characterising secured facilities, usually survive the beginning of a bankruptcy proceeding, according to the Italian Law and many others developed countries' legal framework. Therefore, the unsecured portion of bank credit generally faces more risk, and higher interest rate to compensate for the additional risk.

The differential impact due to the quality of law enforcement affects mostly unsecured credits, as in the case of non-price effects. In fact, the DID coefficients on the interaction between *Exposure* and *CRI* is always greater for unsecured than for secured credits. Such coefficients for unsecured facilities range between 2.55 and 4.26 times more than the corresponding coefficients for secured ones, adopting liquidation identification. Results can be interpreted as follows. On average, a credit toward a firm operating in a less efficient judicial district, benefits (suffers) from unitary increase (decrease) of *CRI* with a differential reduction (increment) in *Spread* of approximately 0.1 bps for every quarter of additional duration of a Liquidation (column (3)), relative to a comparable credit towards a company headquartered in a more efficient district. But, if the credit is unsecured, the DID impact of heterogeneity in law enforcement is twice as much as the average, equalling 0.2 bps for every additional quarter of lasting of a Liquidation (column (18)). Hence, the non-collateralization of a credit deepens the differential effect that court efficiency has on interest rate spreads, following a change in creditor rights. Unsecured credits benefit or suffer most the enforcement of a change in creditor rights because, when a company goes through a bankruptcy proceeding, unsecured credits are those most impacted by courts' intervention. These results are statistically significant and confirmed economically under any identification strategy.

D) New and old credits

Table XXVI reports regressions for the variable interest rate spread (*Spread*), where we segment the sample in new and old credits. New credits are those issued in a given quarter; on the contrary, old credits

have been issued before that quarter. Columns (1), (2) and (21) to (24) use filing duration (*Filing_Time*) as a measure of exposure to reforms (*Exposure*). Columns (3), (4) and (25) to (28) assume liquidation duration (*Liquidation_Time*) as exposure. The top panel reports results where *Exposure* is measured over 2001-2004, while in the bottom panel *Exposure* is estimated over 2001-2009.

Table XXVI – Interest Rate Spread (Spread) regression results splitting the sample between new and old credits

Independent Variable	Filing Duration Identification (2001-2004)			Liquidation Duration Identification (2001-2004)		
	All (1)	New (21)	Old (22)	All (3)	New (25)	Old (26)
Exposure (Exp)	0.386 (0.240)	1.637 *** (0.520)	0.381 (0.258)	0.081 (119.9)	-5.874 ** (2.911)	-0.515 (1039)
Creditor Rights Index (CRI)	-0.143 *** (0.004)	-0.188 *** (0.016)	-0.126 *** (0.004)	-0.131 *** (0.006)	-0.169 *** (0.023)	-0.110 *** (0.006)
Exposure x CRI	-0.005 * (0.003)	-0.029 *** (0.011)	-0.006 ** (0.003)	-0.001 *** (0.000)	-0.002 ** (0.001)	-0.001 *** (0.000)
Exposure x Credit Cycle	-0.076 *** (0.015)	-0.106 (0.161)	0.005 (0.016)	-0.003 *** (0.001)	-0.011 (0.009)	0.001 (0.001)
Credit controls (X)	Yes	Yes	Yes	Yes	Yes	Yes
Firm structural control (D)	Yes	Yes	Yes	Yes	Yes	Yes
Firm fin. / oper. controls (F)	Yes	Yes	Yes	Yes	Yes	Yes
Quarter x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Province control	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	1,063,856	52,551	1,011,305	1,063,856	52,551	1,011,305
Adjusted R-squared	0.547	0.562	0.544	0.547	0.562	0.544
Independent Variable	Filing Duration Identification (2001-2009)			Liquidation Duration Identification (2001-2009)		
	All (2)	New (23)	Old (24)	All (4)	New (27)	Old (28)
Exposure (Exp)	0.510 * (0.269)	2.009 *** (0.607)	0.499 * (0.289)	-0.048 (85.18)	-2.234 ** (1.110)	-0.559 (0.621)
Creditor Rights Index (CRI)	-0.140 *** (0.005)	-0.183 *** (0.021)	-0.121 *** (0.005)	-0.132 *** (0.006)	-0.152 *** (0.023)	-0.112 *** (0.006)
Exposure x CRI	-0.008 ** (0.004)	-0.039 *** (0.014)	-0.009 ** (0.004)	-0.001 *** (0.000)	-0.003 *** (0.001)	-0.001 *** (0.000)
Exposure x Credit Cycle	-0.093 *** (0.020)	-0.289 (0.194)	0.012 (0.020)	-0.004 *** (0.001)	-0.009 (0.010)	0.001 (0.001)
Credit controls (X)	Yes	Yes	Yes	Yes	Yes	Yes
Firm structural control (D)	Yes	Yes	Yes	Yes	Yes	Yes
Firm fin. / oper. controls (F)	Yes	Yes	Yes	Yes	Yes	Yes
Quarter x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Province control	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	1,063,856	52,551	1,011,305	1,063,856	52,551	1,011,305
Adjusted R-squared	0.547	0.562	0.544	0.547	0.562	0.544

The table reports OLS estimation of the effects of the Bankruptcy Law reforms on *Interest Rate Spread* (*Spread*), splitting the sample between new credits (*New*) and old credits (*Old*), where *New* is a dummy variable tracking whether a credit is issued in a given quarter. Regressions follow the average effect specification, according to equation (1) in the text. In columns (1), (2), (21), (22), (23), and (24), the exposure to the reforms is based on filing identification (§ 4.2), where *Exposure* is the average duration of filings for Liquidation in the judicial district where a firm is headquartered (*Filing_Time*). In columns (3), (4), (25), (26), (27), and (28), the exposure to the reforms is based on liquidation identification (§ 4.2), where *Exposure* is the average duration of liquidation proceedings (*Liquidation_Time*). Top panel and bottom panel report regressions where *Exposure* is, respectively, the 2001-2004 and the 2001-2009 average filing or liquidation duration. Regressions (1), (2), (3), and (4) are based on the overall sample and are equal to the regressions identically numbered in previous tables for the corresponding outcome variable (*Spread*). Regressions (21), (23), (25) and (27) subsample new credits. Regressions (22), (24), (26), and (28) subsample old credits. All regressions include control variables described in the text (§ 4.1.2): credit characteristics (X_{ijt}), firm's structural characteristics (D_{jt}), firm's financial and operating characteristics ($F_{j(t-1)}$), macro controls (Quarter times Year Fixed Effect ($Q \cdot Y$) and *Province*), and Credit Cycle control ($Exposure_j \cdot Cycle_t$). Appendix B provides description of all the variables. Robust, firm-clustered standard errors are reported in parenthesis. Significance level: ***, **, and * denote significance at 1%, 5%, and 10% p-value levels, respectively.

Similarly to the non-price effects, creditor rights appear to be more relevant for new than for old credits, because the estimated coefficient on CRI is on average 1.5 times larger for the former relative to the latter; all the identification strategies support this outcome and are statistically significant. For example, under 2001-2009 filing identification, one unit of increment in *CRI* is on average associated with -18.3 bps reduction in the spread charged to new credits (column (23)), com-

pared to -12.6 bps for old ones (column (24)). These findings corroborate that creditor rights matter more from an *ex-ante* perspective; the bank analyses them when evaluating a credit application, in order to decide at which rate to lend given the rights it can activate to resolve an eventual distress of the borrower. After closing a contract, on the other hand, for a bank it becomes more complicated to modify lending rates, especially for term loans, even if creditor rights change.

New credits are more influenced by enforcement risk stemming from different level of courts' efficiency, relative to old facilities. In fact, the DID coefficient for the interaction between *CRI* and *Exposure* is always larger for new than for old credits. For example, under 2001-2009 filing identification, the coefficient is equal to -3.9 bps for new (column (23)) compared to -0.9 bps for old credits (column (24)). Hence, the interpretation may be that enforcement risk is priced *ex-ante* by the bank when a credit is issued conditional on creditor rights at that point in time; later, it becomes more difficult to adjust interest rates for previously issued credit, even following a modification in *CRI*, although an enforcement effect is present also for old facilities, because DID coefficient is negative and statistically significant for them too.

4.5 Individual reforms focus

4.5.1 Individual reforms specification

To the purpose of identifying the separate effects of each of reform being analysed, we use an alternative empirical specification, in which the econometric analysis isolates the effects of each reform in the sample (2010, 2012, and 2013) as follows:

$$Y_{ijt} = \alpha + \beta Exposure_j + \rho\big(Exposure_j \cdot Ref10_t\big) + \gamma\big(Exposure_j \cdot Ref12_t\big) + \delta\big(Exposure_j \cdot Ref13_t\big)$$
$$+ \eta\big(Exposure_j \cdot Cycle_t\big) + X_{ijt}\Omega + D_{jt}\Phi + F_{j(t-1)}\Lambda + Q \cdot Y + \varepsilon_{ijt} \quad (2)$$

In the equation Y_{ijt} represents the output variable of interests (e.g. *Interest Rate Spread* or *Recoverable Amount at Default*) for the credit i (e.g. loan) to firm j at time t (defined at quarterly frequency), exactly as in the main specification setup. Equally, the time-invariant indicator measuring the firm exposure to a Bankruptcy Law reform ($Exposure_j$) is the same as in the main specification and identifies exposure groups across firms. It thus takes different values according to each of the two

identification strategies: *Filing_Time* in the first and *Liquidation_Time* in the second identification.

Ref10$_t$, *Ref12$_t$* and *Ref13$_t$* are time dummies associated with the dates of the reforms, and respectively B.L. reforms of 2010, 2012 and 2013. These dummies have a value of zero prior to the reform and one thereafter. For instance, the reform of 2010 is enforced in July 2010; thus, it takes a value of zero before the second quarter of 2010 and one thereafter. The 2012 reform becomes applicable from September 2012; therefore, *Ref12* has a value of zero before the third quarter of 2012 and one from then on. Finally, the reform of 2013 is enacted in August 2013; thus, *Ref13* is equal to one from the 3rd quarter of 2013 onward.

The interaction between reform and exposure indicators discerns the impact of each reform on the output variable (e.g., *Spread*). The coefficient on the first interaction, ρ, is the DID estimate for the 2010 reform; it measures how the difference between the output variables across exposure groups changes relative to the pre-reform period. The coefficient on the second interaction, γ, represents the DID estimate for the 2012 reform; it estimates the average differential effect of the 2012 reform on the output variable, before and after the reform itself, across firms operating in different judicial districts and, consequently, a different exposure to the Bankruptcy Law due the heterogeneity in court efficiency. The coefficient on the third interaction, δ, is the DID estimate for the 2013 reform; it measures the average differential impact of the 2013 reform on the outcome variable's difference across the exposure groups.

We expect the sign of the DID coefficients to change, according to the output variable and to the impact of each reform on creditor rights. In the case of variables tracking a price effect (namely, *Spread*), reforms decreasing (increasing) creditor rights should produce an increase (decrease) of interest rates and thus the corresponding coefficients should be positive (negative). Yet, the sign on the coefficient on a price effect may switch and be ambiguous, depending on the structure of the market (competitive or monopolistic) and on the specific judicial reform, according to the prevailing literature (Jappelli, et al., 2005; Acharya & Subramanian, 2009; Acharya & Subramanian, 2009). On the contrary, reforms decreasing (increasing) creditor rights should always produce a reduction (growth) of volume of credit available to firms; consequently, when the outcome variables record

a quantity effect in the market (*RAD*), DID coefficients should be negative in the case of a reform weakening creditor rights, while they should be positive in the opposite situation.

As under the main econometric setting, in all our regressions we control for several aggregate (*Exposure$_j$·Cycle$_t$*), credit-specific (*X$_{ijt}$*), firm-specific (*D$_{jt}$* and *F$_{j(t-1)}$*), geography (*Province*) and time-fixed (*Q·Y*) effects. Such variables and the related coefficients (η, Ω, Φ, and Λ, respectively) have the same meaning and computation as under the main specification approach. Finally, we cluster the error term, ε$_{ijt}$, at firm level. Appendix B and § 4.1.2 describe all the variables used in the analysis.

In order to limit the overlapping influences between the reforms, we restrict the sample in two ways, for each reform by: (i) limiting the sample to five quarters: two quarters before the reform, the quarter of the reform and two quarters after the reform (henceforth, also "5 quarters approach"); (ii) limiting the sample to the quarters in which only one reform occurs (henceforth, also "non-overlapping quarters approach"): for the 2010 Reform we cut the sample at 2012-Q2 (before the adoption of the 2012 Reform), while for the 2012 Reform we restrict the sample between 2010-Q3 (after the introduction of the 2010 Reform) and 2013-Q2 (before the 2013 Reform), and, finally, for the 2013 Reform we use the sample from 2012-Q4 (after the 2012 Reform) onward.

4.5.2 Individual reforms results

Table XXVII presents the DID regression results for the log of *Recoverable Amount at Default* (*rad*) under the individual reforms specification. Columns from (1) to (6) assume firms' exposure to B.L. is equal to the average 2001-2009 duration of examination of filings for Liquidation (*Filing_Time*); instead, in columns from (7) and (12) *Exposure* is equal to the average 2001-2009 duration of liquidation proceedings (*Liquidation_Time*)[9]. Top panel reports results under the 5 quarters approach and bottom panel presents results under the non-overlapping quarters approach.

Results are consistent with the theory. Reforms weakening creditor rights (namely, 2010 and 2012) have differential negative conse-

---

[9] We run similar regressions adopting the 2001-2004 average filing and liquidation duration; results are consistent with what we describe in this paragraph.

quences on the volume of credit for firms operating in the less efficient judicial districts. On the contrary, reforms reinforcing creditor rights (2013) have differential positive effects in the less efficient courts. Indeed, DID coefficients are negative for the 2010 and 2012 reforms, while they turn to positive for the 2013 Reform. For instance, the DID coefficient on the interaction between *Exposure* and the time dummy tracking the 2012 Reform (*Ref12*), under filing identification, is equal to -0.028 (column (2)). It means that, following the reform, the average *RAD* for a credit to a firm operating in a less efficient judicial district suffers an additional contraction of 2.8% relative to a comparable credit toward an SMEs operating in a more efficient court; such an additional effect occurs for every quarter of longer lasting of filings' examination in the less virtuous court compared to the more efficient one. Results are consistent and statistically significant under all the identification strategies.

Table XXVII – Recoverable Amount at Default (rad) regression results under individual reforms specification

Independent Variable	Filing Duration Identification (2001-2009) 5 Quarters Approach			Liquidation Duration Identification (2001-2009) 5 Quarters Approach		
	2009Q4-2010Q4 (1)	2012Q1-2013Q1 (2)	2013Q1-2014Q1 (3)	2009Q4-2010Q4 (7)	2012Q1-2013Q1 (8)	2013Q1-2014Q1 (9)
Exposure x Ref10	-0.029 *** (0.004)			-0.001 *** (0.000)		
Exposure x Ref12		-0.028 ** (0.014)			-0.001 ** (0.001)	
Exposure x Ref13			0.098 *** (0.017)			0.006 *** (0.001)
Credit controls (X)	Yes	Yes	Yes	Yes	Yes	Yes
Firm structural control (D)	Yes	Yes	Yes	Yes	Yes	Yes
Firm fin. / oper. controls (F)	Yes	Yes	Yes	Yes	Yes	Yes
Quarter x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Province control	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	726,202	994,466	964,917	726,202	994,466	964,917
Adjusted R-squared	0.286	0.285	0.285	0.286	0.285	0.285

Independent Variable	Filing Duration Identification (2001-2009) Non-overlapping Quarters Approach			Liquidation Duration Identification (2001-2009) Non-overlapping Quarters Approach		
	2009Q4-2012Q2 (4)	2010Q3-2013Q2 (5)	2012Q4-2014Q2 (6)	2009Q4-2012Q2 (10)	2010Q3-2013Q2 (11)	2012Q4-2014Q2 (12)
Exposure x Ref10	-0.082 *** (0.011)			-0.004 *** (0.001)		
Exposure x Ref12		-0.093 *** (0.013)			-0.005 *** (0.001)	
Exposure x Ref13			0.061 *** (0.013)			0.003 *** (0.001)
Credit controls (X)	Yes	Yes	Yes	Yes	Yes	Yes
Firm structural control (D)	Yes	Yes	Yes	Yes	Yes	Yes
Firm fin. / oper. controls (F)	Yes	Yes	Yes	Yes	Yes	Yes
Quarter x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Province control	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	1,933,776	2,352,542	1,352,514	1,933,776	2,352,542	1,352,514
Adjusted R-squared	0.286	0.286	0.281	0.286	0.286	0.281

The table reports OLS estimation of the effects of the Bankruptcy Law reforms on log-value of *Recoverable Amount at Default* (*rad*), under individual reform specification according equation (2) in the text. In columns from (1) to (6) the exposure to the reforms is based on filing identification (§ 4.2), where *Exposure* is the average 2001-2009 duration of examination of filings for Liquidation in the judicial district where a firm is headquartered (*Filing_Time*). In columns from (7) to (12), the exposure to the reforms is based on liquidation identification (§ 4.2), where *Exposure* is the average 2001-2009 duration of liquidation proceedings (*Liquidation_Time*). Top panel and bottom panel report regressions based, respectively, on the "5 quarters" and the "non-overlapping quarters" approach (§ 4.5.1). *Ref10*, *Ref12*, and *Ref13* are time dummies tracking, respectively, the quarter of adoption of 2010 (2010-Q2), 2012 (2012-Q3) and 2013 (2013-Q3) reform. All regressions include control variables described in the text (§ 4.1.2): credit characteristics (X_{ijt}), firm's structural characteristics (D_{jt}), firm's financial and operating characteristics ($F_{j(t-1)}$), macro controls (Quarter times Year Fixed Effect ($Q \cdot Y$) and *Province*), and Credit Cycle control (*Exposure$_j$·Cycle$_t$*). Appendix B provides description of all the variables. Robust, firm-clustered standard errors are reported in parenthesis. Significance level: ***, **, and * denote significance at 1%, 5%, and 10% p-value levels, respectively.

Moreover, it seems that reforms reducing CRI have long lasting consequences on the market. In fact, the DID coefficients for the 2010 and 2012 reform are always greater for the non-overlapping, which covers a longer period, than for the 5 quarters approach; the coefficients for the former approach may be up to 3 times larger than for the former. For example, under filing identification, the coefficient of interest is -2.8% under 5 quarters and -9.3% under the non-overlapping quarters, suggesting long-term consequences of a reform.

Table XXVIII presents the DID regression results for the *Interest Rate Spread* (*Spread*) under the individual reforms specification (§ 4.5.1). Columns from (1) to (6) assume firms' exposure to the Bankruptcy Law is equal to the average 2001-2009 duration of examination of filings for Liquidation (*Filing_Time*); instead, in columns from (7) and (12) *Exposure* is equal to the average 2001-2009 duration of liquidation proceedings (*Liquidation_Time*)[10]. Top panel reports results under the 5 quarters approach and bottom panel presents results under the non-overlapping quarters approach.

Results for 2010 Reform may be reconciled with the literature on ambiguous results of some law modifications (Jappelli, et al., 2005); indeed, although the reform shrinks creditor rights, it has a negative effect on interest rate spread. This may be due to the level of competition in the market.

Results for 2012 and 2013 reforms confirm the hypothesis that a reduction of CRI negatively affects borrowers which are located in less efficient judicial districts. For instance, the DID coefficient under non-overlapping approach for the 2012 Reform is positive for 11.7 bps (column (5)), suggesting that credits to a firm operating in a less efficient court suffer an incremental growth in *Spread* by 11.7 bps for every quarter of additional lasting of the filings' examination, relative to a comparable credit toward a SME operating in a more efficient court. Findings for the 2013 reform are specular: DID coefficient is negative because the reform improves CRI, although not always statistically significant.

---

[10]   We run similar regressions adopting the 2001-2004 average filing and liquidation duration; results are consistent with what we describe in this paragraph.

Table XXVIII – Interest Rate Spread (Spread) regression results under individual reforms specification

Independent Variable	Filing Duration Identification (2001-2009)			Liquidation Duration Identification (2001-2009)		
	5 Quarters Approach			*5 Quarters Approach*		
	2009Q4-2010Q4	*2012Q1-2013Q1*	*2013Q1-2014Q1*	*2009Q4-2010Q4*	*2012Q1-2013Q1*	*2013Q1-2014Q1*
	(1)	*(2)*	*(3)*	*(7)*	*(8)*	*(9)*
Exposure x Ref10	-0.062 *** (0.007)			-0.003 *** (0.000)		
Exposure x Ref12		0.073 *** (0.017)			0.004 *** (0.001)	
Exposure x Ref13			0.018 (0.012)			0.001 (0.001)
Credit controls (X)	Yes	Yes	Yes	Yes	Yes	Yes
Firm structural control (D)	Yes	Yes	Yes	Yes	Yes	Yes
Firm fin. / oper. controls (F)	Yes	Yes	Yes	Yes	Yes	Yes
Quarter x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Province control	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	192,096	309,291	319,568	192,096	309,291	319,568
Adjusted R-squared	0.753	0.529	0.498	0.753	0.529	0.498

Independent Variable	Filing Duration Identification (2001-2009)			Liquidation Duration Identification (2001-2009)		
	Non-overlapping Quarters Approach			*Non-overlapping Quarters Approach*		
	2009Q4-2012Q2	*2010Q3-2013Q2*	*2012Q4-2014Q2*	*2009Q4-2012Q2*	*2010Q3-2013Q2*	*2012Q4-2014Q2*
	(4)	*(5)*	*(6)*	*(10)*	*(11)*	*(12)*
Exposure x Ref10	-0.289 *** (0.012)			-0.015 *** (0.001)		
Exposure x Ref12		0.117 *** (0.018)			0.007 *** (0.001)	
Exposure x Ref13			-0.047 *** (0.015)			-0.003 *** (0.001)
Credit controls (X)	Yes	Yes	Yes	Yes	Yes	Yes
Firm structural control (D)	Yes	Yes	Yes	Yes	Yes	Yes
Firm fin. / oper. controls (F)	Yes	Yes	Yes	Yes	Yes	Yes
Quarter x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Province control	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	559,400	723,692	446,654	559,400	723,692	446,654
Adjusted R-squared	0.632	0.570	0.491	0.632	0.571	0.491

The table reports OLS estimation of the effects of the Bankruptcy Law reforms on *Interest Rate Spread* (*Spread*), under individual reform specification according equation (2) in the text. In columns from (1) to (6) the exposure to the reforms is based on filing identification (§ 4.2), where *Exposure* is the average 2001-2009 duration of examination of filings for Liquidation in the judicial district where a firm is headquartered (*Filing_Time*). In columns from (7) to (12), the exposure to the reforms is based on liquidation identification (§ 4.2), where *Exposure* is the average 2001-2009 duration of liquidation proceedings (*Liquidation_Time*). Top panel and bottom panel report regressions based, respectively, on the "5 quarters" and the "non-overlapping quarters" approach (§ 4.5.1). *Ref10*, *Ref12*, and *Ref13* are time dummies tracking, respectively, the quarter of adoption of 2010 (2010-Q2), 2012 (2012-Q3) and 2013 (2013-Q3) reform. All regressions include control variables described in the text (§ 4.1.2): credit characteristics (X_{ijt}), firm's structural characteristics (D_{jt}), firm's financial and operating characteristics ($F_{j(t-1)}$), macro controls (Quarter times Year Fixed Effect ($Q \cdot Y$) and *Province*), and Credit Cycle control (*Exposure$_j \cdot$Cycle$_t$*). Appendix B provides description of all the variables. Robust, firm-clustered standard errors are reported in parenthesis. Significance level: ***, **, and * denote significance at 1%, 5%, and 10% p-value levels, respectively.

4.6 Robustness checks

We run a series of regressions as robustness, both under filing and liquidation identification. All regressions are defined as in the main econometric specification (§ 4.3.1); major findings are robust to the checks we perform and reported in the online appendix.

As a first set of regressions, we modify separately what follows relative to the main specification in each regression:

– including *Probability of Default* (*PD*) as control variable;
– including *Euribor 3M* as control variable;
– including Government Bond Yield (*Gvmt Yield*) as control variable;
– including *Bank Tier 1 ratio* as control variable;
– including *GDP Growth* and *Inflation* as control variables;
– including *GDP Growth* and *Unemployment Growth* as control variables;
– including *Unemployment Growth* and *Inflation* as control variables;
– excluding *Industry* as control variable;
– excluding *Segment Size* as control variable;
– excluding *Province* as control variable;
– clustering standard errors at *Province* level.

As a second set of regressions, we cut the tails of the court efficiency's distribution by (i) winsorising the sample at 1% right tail of credits' distribution according to the *Exposure* or (ii) winsorising the sample at 1% two-tails of same distribution. Such approach allows us to exclude, alternatively, credits to firms headquartered in the bottom 1% least efficient courts and in the top/bottom 1% most/least efficient judicial districts. All our findings are robust to the use of a winsorised sample.

Finally, as a third set of regressions, we exclude credits to debtors entering the sample in the first quarter of 2010, because in that quarter there is an increase in the number of debtors due to the data consolidation process utilized by the Bank. We re-run regressions according to main specification and exclude credits to firms entering the sample in 2010-Q1. Results are robust to such an exclusion.

5. Conclusions

This book provides a comprehensive analysis of the within country effects of the enforcement of the Bankruptcy Law on the bank credit market for SMEs, exploiting post financial crisis reforms in Italy and a novel dataset collected at single bank credit level.

The empirical analysis conveys five main messages. First, creditor rights are statistically and economically related to the quantity and the price of bank credit to SMEs, not only at an aggregate level as previous studies show (Djankov, et al., 2007), but even at single credit level and after controlling for cross-sectional credit characteristics. Second, the quality of law enforcement amplifies the effects of a change in creditor rights, because the differential impact of such effects is larger for SMEs operating under less efficient courts' jurisdictions. Third, a Bankruptcy Law reform reducing creditor rights causes a substantial reduction of credit volumes provided by a bank; correspondingly, when a reform strengthens creditor rights, the quantity of credit increases. Fourth, when creditor rights are weakened, the bank lending rate rises. Fifth, the impact of Bankruptcy Law reforms, either on volume and on price of bank credit, is not equal across credits but, beyond being more relevant for credits towards firms operating in less efficient judicial districts, is larger for riskier, unsecured and new credits, both in terms of volume and pricing.

Our results are of particular interest, if we consider that the reforms being studied have been introduced to help firms to overcome

the global financial crisis. In such a macroeconomic context, one could expect that relaxing creditor rights might enhance SMEs' access to and conditions of bank credit. Yet, the work shows that even in such macroeconomic conditions, a reduction of creditor rights negatively affects the volumes of bank credit available to SMEs and the spread charged to them.

The magnitude of the differential impacts we have described, in terms of volume is equivalent to a change of billions Euro to available credit in the economy at an aggregate national level, which is thus extremely significant. In terms of pricing, the effects we report correspond to a change of hundreds of millions Euro on interest expenses incurred yearly by SMEs; the direction of the change is positive when creditor rights are weakened (lending rates increase) and is negative (rates decrease) otherwise. Therefore, we conclude that Bankruptcy Law reforms that weaken (strengthen) creditor right may cause a significant credit contraction (expansion) and a material interest rate increase (decrease) in the bank credit market for SMEs. As we observe that SMEs operating in less efficient courts face both a differential contraction of volumes and increase of credit spread, following a reduction in CRI, our findings suggest an upward shift in the supply curve which is consistent with the prevailing theory about credit rationing (Stiglitz & Weiss, 1981).

A bank credit "crunch" following a reduction in CRI may increase probability that a firm enters financial distress. This is particularly true when the crunch affects primarily firms closer to default, as results show. Moreover, an increase in the interest rates reduces firms' profitability, thus raising in turn the probability of financial distress. As SMEs approach / enter financial distress, they face three well-known corporate finance issues:

(i)   credit rationing: entrepreneurs are not able to (re)finance positive net-present value projects;

(ii)   overinvestment risk: entrepreneurs may "gamble for resurrection", in an attempt to continue the business;

(iii) underinvestment problem: shareholders do not find incentive to invest new funds, even for positive net-present value projects, because benefits accrue mainly to debt-holders.

These issues might drive entrepreneurs to strategically file for Renegotiation, in an attempt to cut-off debt and continue as a going-con-

cern. If banks anticipate entrepreneurs' move, there is a further credit contraction / increase of interest rates: a vicious cycle might start.

The credit contraction and the increase in the spreads charged to SMEs, after a reduction of creditor rights, is particularly pronounced for firms operating in less efficient judicial districts. Our results support the hypothesis that a lender reaction to a change in its rights is influenced not only by the law, but also by the quality of law enforcement. If we accept the fact that the reaction is stronger in less efficient judicial districts, we can argue that a repeated series of contraction of creditor rights, as we have observed in the Italian case, may jeopardize the credit market within a country. Indeed, credits to firms operating under less efficient courts' jurisdictions continue to suffer a contraction of volume and an increase of credit, relative to firms operating in more efficient judicial district. As a consequence, the quality of law enforcement becomes a driver of credit market development which is in turn linked to economic growth.

Regulators should thus consider carefully each intervention to the Bankruptcy Law, taking into account all the proceedings available to SMEs either aiming to continuation and to liquidation of firms. Moreover, the efforts should aim to improve also the quality of law enforcement and to reduce its variability within the country. Otherwise, results document that there may be some unintended consequences in the action of the regulators: even reforms enacted with the aim to facilitate debt renegotiation seem actually to have worsened bank credit conditions for SMEs, due also to the effect that law enforcement plays in the banks' reaction to a change in the protection of their rights.

6. References

Acharya, V. V. & Subramanian, K. V., 2009. Bankruptcy Codes and Innovation. *Review of Financial Studies,* 22(12), pp. 4949-4988.

Acharya, V. V., Sundaram, R. K. & John, K., 2011. Cross-country variations in capital structures: The role of bankruptcy codes. *Journal of Financial Intermediation,* 20(1), pp. 25-54.

Ayotte, K. & Yun, H., 2009. Matching Bankruptcy Laws to Legal Environments. *The Journal of Law, Economics, and Organization,* 25(1), pp. 2-30.

Barachini, F., 2014. The new discipline of provisional trading: the going concern approach for business in distress in (and outside) insolvency. In: M. Vietti, F. Marotta & F. Di Marzio, eds. *The Italian Change for Restructuring.* Milano: Giuffrè Editore S.p.A., p. 292.

Bianco, M. et al., 2007. La durata (eccessiva) dei Procedimenti Civili in Italia: Offerta, Domanda o Rito?. *Rivista di politica economica,* 97(5), pp. 3-53.

Bris, A., Welch, I. & Zhu, N., 2006. The Costs of Bankruptcy: Chapter 7 Liquidation versus Chapter 11 Reorganization. *Journal of Finance,* 61(3), pp. 1253-1303.

Cerqueiro, G., Ongena, S. & Roszbach, K., 2014. Collateralization, Bank Loan Rates, and Monitoring. *Journal of Finance,* Volume Forthcoming.

Chemin, M., 2012. Does Court Speed Shape Economic Activity? Evidence from a Court Reform in India. *Journal of Law, Economics, and Organization,* 28(3), pp. 460-485.

Cleary Gottlieb Steen & Hamilton LLP, 2015. *Italy's New Restructuring Rules,* Milan/Rome: Cleary Gottlieb Steen & Hamilton LLP.

Clifford Chance Studio Legale Associato, 2015. *The new reform on bankruptcy law,* Milan: Clifford Chance.

Davidenko, S. A. & Franks, J. R., 2008. Do Bankruptcy Codes Matter? A Study of Defaults in France, Germany and the UK. *Journal of Finance,* 63(2), pp. 565-608.

Djankov, S., Hart, O., McLiesh, C. & Shleifer, A., 2008. Debt Enforcement Around the World. *Journal of Political Economy,* 116(6), pp. 1105-1149.

Djankov, S., La Porta, R., Lopez de Silanes, F. & Shleifer, A., 2003. Courts. *The Quarterly Journal of Economics,* 118(2), pp. 453-517.

Djankov, S., McLiesh, C. & Shleifer, A., 2007. Private Credit in 129 Countries. *Journal of Financial Economics,* 84(2), pp. 299-329.

Favara, G., Morellec, E., Schroth, E. & Valta, P., 2017. Debt Enforcement, Investment, and Risk Taking Across Countries. *Journal of Financial Economics,* Volume 123, pp. 22-41.

Freshfields Bruckhaus Deringer LLP, 2012. *Further amendments to the Italian Bankruptcy Law on restructuring,* Milan: Freshfields Bruckhaus Deringer LLP.

Gennaioli, N. & Rossi, S., 2010. Judicial Discretion in Corporate Bankruptcy. *Review of Financial Studies,* 23(11), pp. 4078-4114.

Gennaioli, N. & Rossi, S., 2013. Contractual Resolutions of Financial Distress. *Review of Financial Studies,* 26(3), pp. 602-634.

Gennaioli, N., 2013. Optimal Contracts with Enforcement Risk. *Journal of the European Economic Association,* 11(1), pp. 59-82.

Giacomelli, S., Menon, C. & Rodano, G., 2013. Courts efficiency and Credit. *Working Paper.*

Gorton, G. & Schmid, F. A., 2000. Universal Banking And The Performance Of German Firms. *Journal of Financial Economics,* 58(1), pp. 29-80.

Hart, O. & Moore, J., 1998. Default and Renegotiation: A Dynamic Model of Debt. *The Quarterly Journal of Economics,* 113(1), pp. 1-41.

Hart, O., 1995. *Firms, Contracts, and Financial Structure.* I ed. Oxford: Oxford University Press.

Haselmann, R., Pistor, K. & Vig, V., 2008. How Law Affects Lending. *Law & Economics Research Paper,* Volume Working Paper 285.

Hsieh, C.-T. & Klenow, P. J., 2009. Misallocation and Manufacturing TFP in China and India. *Quarterly Journal of Economics,* 124(4), pp. 1403-1448.

Ichino, A., Polo, M. & Rettore, E., 2003. Are Judges Biased by Labor Market Conditions?. *European Economic Review,* 47(5), pp. 913-944.

Ippolito, F., Ozdagli, A. K. & Perez, A., 2013. Is Band Debt Special for the Transmission of Monetary Policy? Evidence from the Stock Market. *Working Paper.*

ISTAT, 2014. *Rapporto Annuale,* Roma: Istituto Nazionale di Statistica.

Jappelli, T., Pagano, M. & Bianco, M., 2005. Courts and Banks: Effects of Judicial Enforcement on Credit Markets. *Journal of Money, Credit and Banking,* 37(2), pp. 223-244.

La Porta, R., Lopez de Silanes, F., Shleifer, A. & Vishny, R., 1997. Legal Determinants of External Finance. *Journal of Finance,* 52(3), pp. 1131-1150.

La Porta, R., Lopez de Silanes, F., Shleifer, A. & Vishny, R., 1998. Law and Finance. *Journal of Political Economy*, 106(6), pp. 1113-1155.

La Porta, R., Lopez de Silanes, F., Shleifer, A. & Vishny, R., 2000. Investor protection and corporate governance. *Journal of Financial Economics,* 58(1), pp. 3-27.

La Porta, R., Lopez de Silanes, F. & Shleifer, A., 2008. The Economic Consequences of Legal Origins. *Journal of Economic Literature,* 46(2), pp. 285-332.

Lilienfeld-Toal, U. v., Mookherjee, D. & Visaria, S., 2012. The Distributive Impact of Reforms in Credit Enforcement: Evidence From Indian Debt Recovery Tribunals. *Econometrica,* 80(2), pp. 497-558.

Modigliani, F. & Miller, M. H., 1958. The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review,* 48(3), pp. 261-297.

Panetta, F., Schivardi, F. & Shump, M., 2009. Do Mergers Improve Information? Evidence from the Loan Market. *Journal of Money, Credit and Banking,* 41(4), pp. 673-709.

Ponticelli, J., 2013. Court Enforcement and Firm Productivity: Evidence from a Bankruptcy Reform in Brazil. *Chicago Booth Research Paper,* 14(08).

Roberts, M. R. & Sufi, A., 2009. Financial Contracting: A Survey of Empirical Research and Future Directions. *Annual Review of Financial Economics,* 1(1), pp. 207-226.

Rodano, G., Serrano-Velarde, N. & Tarantino, E., 2016. Bankruptcy Law and Bank Financing. *Journal of Financial Economics,* 120(2), pp. 363-382.

Safavian, M. & Sharma, S., 2007. When Do Creditor Rights Work?. *Journal of Comparative Economics,* 35(3), pp. 484-508.

Santos, J. A., 2011. Bank Corporate Loan Pricing Following the Subprime Crisis. *Review of Financial Studies,* 24(6), pp. 1916-1943.

Shearman & Sterling LLP, 2012. *New Rules on Restructurings: Italian Bankruptcy Law Increasingly Aligned to US Chapter 11,* New York: Shearman & Sterling LLP.

Stiglitz, J. E. & Weiss, A., 1981. Credit Rationing in Markets with Imperfect Information. *The American Economic Review,* 71(3), pp. 393-410.

Stiglitz, J. E., 1969. A Re-Examination of the Modigliani-Miller Theorem. *The American Economic Review,* 59(5), pp. 784-793.

Strahan, P. E., 1999. Borrower Risk and the Price and Nonprice Terms of Bank Loans. *Federal Reserve Board of New York Staff Report,* Volume Working Paper Series 90.

The World Bank, 2016. *Doing Business 2016 - Economy Profile Italy,* Washington: The World Bank.

Vietti, M., Marotta, F. & Di Marzio, F., 2014. *The Italian Change for Restrcuturing.* I ed. Milano: Giuffrè Editore S.p.A..

Vig, V., 2013. Access to Collateral and Corporate Debt Structure: Evidence from a Natural Experiment. *Journal of Finance,* 68(3), pp. 881-928.

Visaria, S., 2009. "Legal Reform and Loan Repayment: The Microeconomic Impact of Debt Recovery Tribunals in India. *American Economic Journal: Applied Economics,* 1(3), pp. 59-81.

White, M. J., 1996. The costs of corporate bankruptcy: A U.S.-European comparison. In: J. S. Bhandari & L. A. Weiss, eds. *Corporate Bankruptcy: Economic and Legal Perspectives.* Cambridge: Cambridge University Press, pp. 467-499.

7. Appendix A – CRI's constituents

The appendix details the 17 rights constituting the CRI. Per each right a score of 0 (pro-debtor) or 1 (pro-creditor) is assessed based on the Law. We measure CRI separately for each bankruptcy proceeding available to SMEs: Private Foreclosure (PF), Foreclosure endorsed by the Court (FC), Reorganization (R), and Liquidation (L). The sum of CRI of each proceeding gives the Total CRI.

The first four rights are those used by LLVS.

Right	Description
No Automatic Stay	1 = there is no automatic stay when the proceeding starts
	0 = there is automatic stay when the proceeding starts
Secured creditors paid first	1 = secured creditors are paid first when liquidating the collateral
	0 = secured creditors are not paid first when liquidating the collateral
	Excluding Court expenses which are always paid first, if any
Restrictions for going into procedure	1 = management needs creditors consent and/or to fulfil specific requirements to file for starting the proceeding
	0 = management can unilaterally file for starting the proceeding without creditors consent and/or fulfilling requirements
Management does not stay	1 = management must leave the firm when it enters the proceeding
	0 = management can continue to run the firm even after starting the proceeding
No Debtor-in-Possession Financing	1 = it is explicitly not allowed to issue debt more senior to the existing one after starting the proceeding
	0 = it is explicitly allowed to issue debt more senior to the existing one after starting the proceeding

Early Automatic Stay	1 = management is required to file a full / detailed proposal to creditors to start automatic stay on assets
	0 = management can start automatic stay on assets first with a light filing and subsequently submit a full /detailed proposal for the company restructuring/liquidation
Court Direct Supervision when Automatic Stay starts	1 = Court has always the right to appoint an administrator / supervisor when automatic stay starts
	0 = Court does not have always the right to appoint an administrator / supervisor when automatic stay starts
Creditors vote directly	1 = creditors can vote directly on the restructuring/liquidation plan
	0 = creditors can vote in committee or not at all on the restructuring/liquidation plan
No Cram-down Procedure	1 = if voting is required, each creditor can make an independent choice about company's restructuring/liquidation proposal
	0 = if voting is required, there is a kind of cram-down procedure which forces individual creditors to accept what is decided by the majority or by the court
No Silent Consent	1 = if voting is required, no vote is considered a contrary vote
	0 = if voting is required, no vote is considered a positive vote
Creditors approve administrator/supervisor	1 = creditors has the right to approve the appointment of the administrator/supervisor during the proceeding
	0 = only the court, the debtor and/or other participants appoint the administrator/supervisor during the proceeding
Creditors dismiss administrator/supervisor	1 = creditors may dismiss or must approve the dismissal of the administrator/supervisor, if any, during the proceeding
	0 = only the court, the debtor and/or other participants has the right to dismiss the administrator/supervisor, if any, during the proceeding
No Minimum Payment	1 = there is no kind of minimum payment to be guaranteed to unsecured creditors in order to endorse the proceeding
	0 = there is a kind of minimum payment to be guaranteed to unsecured creditors in order to endorse the proceeding

No Automatic Loss of Judicial Mortgage	1 = when a judicial mortgage is legally endorsed, it remains despite the start of a proceeding
	0 = when a judicial mortgage is legally endorsed, it may become automatically ineffective, under certain conditions, upon starting the proceeding
Automatic Stay on Lawsuit	1 = lawsuits against the debtor are automatically stayed upon starting the proceeding
	0 = lawsuit against the debtor continues upon starting the proceeding
No Unilateral Termination of Contracts	1 = the debtor cannot unilaterally terminate a contract when starting the proceeding
	0 = the debtor can, under certain conditions, unilaterally terminate a contract when starting the proceeding
No Restrictions to Bankruptcy Repetition	1 = actions/payments legally executed during the proceeding may be subject to repetition in case of subsequent Liquidation
	0 = actions/payments legally executed during the proceeding are excluded from repetition in case of subsequent Liquidation

8. Appendix B – Variables Definition

The appendix provides a comprehensive list of all the variables used in the book, with their definitions. Frequency measure of each variable is denoted by F: Q stands for quarterly frequency of update; Y for yearly frequency of update; K stands for constant variable with no updating frequency throughout the period 2009Q4-2014Q2. Variables marked with (#) are not used directly in the econometric estimation, but are functional to compute other variables; variables marked with (^) are used only for robustness checks; variables indicated with (*) are included in the specification only when Interest Rate or Interest Rate Spread is the outcome variable. Log-value and absolute value are used alternatively; yet, they are listed separately in the current appendix for completeness of information. Source of information is the proprietary database, unless otherwise specified.

8.1 Outcome variables (Y_{ijt})

Variable Name	Code	Description	F
Total Exposure at Default (#)	EAD_{ijt}	Total exposure at default, both on and off balance, for credit i to firm j in the quarter t. For credit lines, EAD is the present value of the amount effectively withdrawn by the firm, plus any accrued and unpaid interests. For loans, it is the present value of residual payments due by the firm, plus any accrued and unpaid interests. For bank guarantees, it is the amount the bank should pay for the guarantee, in case of firm's default, times the probability of default on that guarantee.	Q

Log exposure at default	ead_{ijt}	Log-value of *Total Exposure at Default* for credit *i* to firm *j* at time *t*.	Q
Recovery rate (#)	RR_{ijt}	Recovery rate for credit *i* to firm *j* at time *t* is the percentage of the euro-value of credit that the Bank is expected to recover in case of debtor's default. It is computed as the one's complement of the loss given at default percentage, according to Basel Rules.	Q
Recoverable Amount at Default (#)	RAD_{ijt}	Euro amount that the Bank is expected to recover on credit *i* to firm *j* at time *t*, in case of debtor's default. It is computed as the product of (i) *Total Exposure at Default* and (ii) *Recovery Rate*.	Q
Log of recoverable amount at default	rad_{ijt}	Log-value of *Recoverable Amount at Default* for credit *i* to firm *j* at time *t*.	Q
Interest Rate	IR_{ijt}	Annual nominal gross interest rate for credit *i* to firm *j* in the quarter *t*.	Q
Interest Rate Spread	$Spread_{ijt}$	Difference between (i) *IR* and (ii) the 3-month average Euribor rate during quarter *t* (*Euribor 3M*).	Q

8.2 Input variables

8.2.1 Variables mapping reforms and exposure to reforms (Exp, Ref, and CRI)

Variable Name	Code	Description	F
Exposure to Bankruptcy Law (Identification #1: Filing)	Exp_j	Average duration of examination of filings for Liquidation in a given judicial districts. Duration is measured in quarters.	K
Exposure to Bankruptcy Law (Identification #2: Liquidation)	Exp_j	Average duration of liquidation proceedings in a given judicial district. Duration is measured in quarters.	K

Applicability of 2010 Reform (#)	*Ref10*	Dummy variable taking the value of 1 from the quarter when 2010 reform of the Bankruptcy Law is applicable (2nd quarter, 2010) and 0 before.	Q
Applicability of 2012 Reform (#)	*Ref12*	Dummy variable taking the value of 1 from the quarter when 2012 reform of the Bankruptcy Law is applicable (3rd quarter, 2012) and 0 before.	Q
Applicability of 2013 Reform (#)	*Ref13*	Dummy variable taking the value of 1 from the quarter when 2013 reform of the Bankruptcy Law is applicable (3rd quarter, 2013) and 0 before.	Q
Exposure x Ref10	Exp_j_Ref10	Product of (i) *Exposure to Bankruptcy Law* and (ii) *Applicability of 2010 Reform*.	Q
Exposure x Ref 12	Exp_j_Ref12	Product of (i) *Exposure to Bankruptcy Law* and (ii) *Applicability of 2012 Reform*.	Q
Exposure x Ref 13	Exp_j_Ref13	Product of (i) *Exposure to Bankruptcy Law* and (ii) *Applicability of 2013 Reform*.	Q
Creditor Rights Index	CRI_t	Total Creditor Rights Index as of the end of quarter *t*. The variable is constructed as detailed in § 3.3.	Q
Exposure x CRI	$Exp_j\_CRI_t$	Product of (i) *Exposure to Bankruptcy Law* and (ii) *Creditor Rights Index*.	Q

8.2.2 Variables mapping credit characteristics (X_{ijt})

Variable Name	Code	Description	F
Existence of a guarantee	$Guarantee_{ijt}$	Set of binary variables tracking if credit *i* to firm *j* at time *t* is secured.	Q
- No guarantee	$Unsecured_{ijt}$	Dummy variable equal to 1 if a credit is unsecured; equal to 0 otherwise. In the econometric estimation, *Unsecured* is the omitted category of *Guarantee*.	Q

		Dummy variable equal to 1 if a credit is guaranteed by a mortgage; equal to 0 otherwise.	Q
- Mortgage guarantee	$Mortgage_{ijt}$	Dummy variable equal to 1 if a credit is guaranteed by a mortgage; equal to 0 otherwise.	Q
- Pledge guarantee	$Pledge_{ijt}$	Dummy variable equal to 1 if a credit is guaranteed by a pledge; equal to 0 otherwise.	Q
- Consortium guarantee	$Confidi_{ijt}$	Dummy variable equal to 1 if a credit is guaranteed by a consortium which insures banks' credit at expense of debtors; equal to 0 otherwise.	Q
- Personal guarantee	$Personal_{ijt}$	Dummy variable equal to 1 if a credit is guaranteed by a personal guarantee; equal to 0 otherwise.	Q
- Other guarantee	$Other_{ijt}$	Dummy variable equal to 1 if a credit is guaranteed by any guarantees different from the ones listed above; equal to 0 otherwise.	Q
Status	$Status_{ijt}$	Set of binary variables indicating whether credit i to firm j in quarter t is performing or non-performing. Non-performing credits are categorized according to Bank of Italy's supervisory requirements.	Q
- Performing	$Bonis$	Dummy variable equal to 1 if a credit is performing; equal to 0 otherwise. $Bonis$ is the omitted category of $Status$.	Q
- Non Performing (Past Due)	$Non\_Perf\_Pst_{ijt}$	Dummy variable equal to 1 if a credit is non-performing and categorized as Past Due; equal to 0 otherwise.	Q
- Non Performing (Restructured)	$Non\_Perf\_Res_{ijt}$	Dummy variable equal to 1 if a credit is non-performing and categorized as Restructured; equal to 0 otherwise.	Q
- Non performing (Incaglio)	$Non\_Perf\_Inc_{ijt}$	Dummy variable equal to 1 if a credit is non-performing and categorized as Incaglio; equal to 0 otherwise.	Q

- Non Performing (Sofferenza)	$Non\_Perf\_Sof_{ijt}$	Dummy variable equal to 1 if a credit is non-performing and categorized as Sofferenza; equal to 0 otherwise.	Q
Non Cash	Non_Cash_{ijt}	Binary variable equal to 1 if a credit i to firm j at time t represents a non-cash exposure (i.e. a bank guarantee); equal to 0 otherwise (i.e. cash credit).	Q
New Facility	New_Fac_{ijt}	Dummy variable equal to 1 if credit i to firm j in quarter t represents a new credit issued in that quarter; equal to 0 otherwise.	Q
Maturity	$Maturity_{ijt}$	Set of binary variables mapping whether the original maturity of a given credit i to firm j is short-term, medium-term or long-term.	K
- Short-term maturity	ST_{ijt}	Dummy variable equal to 1 if a credit has an original maturity up to 1 year; equal to 0 otherwise. ST is the omitted category of $Maturity$.	K
- Medium-term maturity	MT_{ijt}	Dummy variable equal to 1 if a credit has an original maturity between 1 and 5 years; equal to 0 otherwise.	K
- Long-term maturity	LT_{ijt}	Dummy variable equal to 1 if a credit has an original maturity of more than 5 years; equal to 0 otherwise.	K
Facility Nature	$SISBA\_Fam_{ijt}$	Set of binary variables mapping the nature of each credit i to firm j at time t (e.g. credit cards, loans, commercial facilities, cash line of credits, …) as classified according to Bank of Italy's regulation requirements (SISBA codification).	Q

Interest Rate Kind (*)	IR_Kind_{ijt}	Set of binary variables mapping the kind of interest rate applied to the credit i to firm j in quarter t (e.g. fixed, floating, option floating/fixed, …). The Bank discloses this variable only for credits whose IR is provided.	Q
Amount of Granted credit (#)	$Granted_{ijt}$	Amount of credit granted by the Bank for credit i to firm j in the quarter t. For credit lines, *Granted* is the maximum amount the line can be withdrawn up to. For loans, it is the residual value of capital reimbursements to be made on the loan. For bank guarantees, it is the nominal value of the guarantee.	Q
Log-amount of Granted credit (*)	$granted_{ijt}$	Log-value of *Granted* for credit i to firm j in the quarter t.	

8.2.3 Variables mapping firm's structural characteristics (Djt)

Variable Name	Code	Description	F
Industry	$Industry_{jt}$	A set of categorical variables mapping the Industry in which a firm j operates in quarter t. Industry classification is based on the Italian Chamber of Commerce coding (ATECO).	Q
Segment Size	$Segment\_Size_{jt}$	A set of binary variables indicating the credit segment size of each firm, according to Bank of Italy's classification requirements to fulfil the Credit Register (Retail Business, Small Business, Corporate, Large Corporate, and Others - residual category for Specialized Lending and "Large Borrowers").	Q
Probability of Default (^)	PD_{jt}	Probability of Default of firm j in 1 year time, as assessed by the Bank according to Basel Rules in quarter t.	Q

8.2.4 Variables mapping firms' financing and operating characteristics (Fj(t-1))

The variables from this section have been collected from Centrale Bilanci, a database provided by Cerved Group, which is commonly used by banks to assess a counterpart credit risk. All the variables, unless otherwise specified, are collected at firm level as reported from the last available annual financial statements released before quarter t.

Variable Name	Code	Description	F
Bank Debt (#)	$BDebt_{j(t\text{-}1)}$	Total bank debt.	Y
Net Debt (#)	$NetDebt_{j(t\text{-}1)}$	Total net financial debt.	Y
Equity (#)	$Equity_{j(t\text{-}1)}$	Total equity.	Y
Assets (#)	$Assets_{j(t\text{-}1)}$	Total assets.	Y
Total Liabilities (#)	$Liab_{j(t\text{-}1)}$	Total liabilities of firm j, computed as the difference between (i) *Assets* and (ii) *Equity*.	Y
Bank Debt / Net Debt	$BDebt_{j(t\text{-}1)}$ / $NetDebt_{j(t\text{-}1)}$	Ratio of (i) *Bank Debt* and (ii) *Net Debt*.	Y
Bank Debt / Total Liabilities	$BDebt_{j(t\text{-}1)}/$ $Liab_{j(t\text{-}1)}$	Ratio of (i) *Bank Debt* and (ii) *Total Liabilities*.	Y
Leverage	$Leverage_{j(t\text{-}1)}$	Ratio of (i) *Assets* and (ii) *Equity*.	Y
Revenues (#)	$Rev_{j(t\text{-}1)}$	Total Revenues.	Y
Log Revenues	$rev_{j(t\text{-}1)}$	Log-value of *Revenues*.	Y
Log Assets	$assets_{j(t\text{-}1)}$	Log-value of *Assets*	Y
EBITDA (#)	$EBITDA_{j(t\text{-}1)}$	Earning before interests, taxes, depreciations, and amortizations.	Y
EBITDA Margin	$EBITDA\_Margin_{j(t\text{-}1)}$	Ratio of (i) *EBITDA* and (ii) *Revenues*.	Y

8.2.5 Variables mapping macroeconomic and exogenous effects

Variable Name	Code	Description	F
Quarter times Year Fixed Effect	$Q \cdot Y$	Set of binary variables mapping uniquely each quarter of the analysis, from 2009-Q4 to 2014-Q2. Omitted category is 2009-Q4.	Q
Province	$Prov_{jt}$	A set of binary variables mapping the province where a firm j is headquartered at time t	Q
Credit Cycle (#)	$Cycle_t$	Expected credit conditions applied to Italian SMEs at the beginning of quarter t. The information is provided by Italian banks in the *Bank Lending Survey* of the European Central Bank and is specifically focused on credit conditions applied to Italian SMEs. The survey is addressed to senior loan officers and asks the following question: "*Please indicate how you expect your bank's credit standards as applied to the approval of loans or credit lines to SMEs to change over the next three months*". Source: https://www.ecb.europa.eu/stats/money/surveys/lend/html/index.en.html	Q
Exposure x Credit Cycle	$Exp_j\_Cycle_t$	Product of (i) *Exposure to Bankruptcy Law* and (ii) *Credit Cycle*.	Q
Euribor 3M (#) (^)	$Euribor\ 3M_t$	Average 3-months Euribor Rate in quarter t. Source: European Central Bank.	Q
Government Bond Yield (^)	$Gvmt\ Yield_t$	Average yield of 10 years Italian Government bond in quarter t. Source: European Central Bank.	Q
GDP Growth (^)	GDP_Growth_t	Quarterly percentage growth of the real Gross Domestic Product in Italy between quarter t-1 and quarter t. Source: ISTAT.	Q

Inflation (^)	$Inflation_t$	Quarterly percentage change of National Index of Consumer Prices (NIC) for the whole Italian nation registered between quarter *t-1* and quarter *t*. Source: ISTAT.	Q
Unemployment Growth (^)	$Unemp\_Growth_t$	Quarterly percentage change of the Unemployment Rate for the overall Italian population, registered between quarter *t-1* and quarter *t*. Source: ISTAT.	Q
Bank Tier 1 Ratio (^)	$Tier1_t$	Core Tier 1 Ratio disclosed by the Bank according to Basel Rules as of the end of quarter *t*.	Q

The quality of law enforcement is key to the well-functioning of an economy. This work studies the effects of the quality of Bankruptcy Law enforcement on the Bank Credit Market. A series of Italian Bankruptcy Law reforms, aiming to facilitate debt renegotiation and business continuation, allows us to disentangle how a change of creditor rights affects Bank Credit Market for SMEs.

This book sheds light on the impacts of enforcement quality on firms' financing conditions, utilizing heterogeneity in court efficiency as an exogenous source of cross-sectional variation in the quality of the enforcement itself. We find that court (in)efficiency amplifies the effects of the reforms. When creditor rights shrink, SMEs operating in less efficient judicial districts experience a larger contraction of credit volumes as well as a stronger rise of bank lending rates, implying credit rationing. Effects are not uniformly distributed, but are stronger for riskier, unsecured and new credits. Findings show that even reforms originally aimed to facilitate access to credit may indeed have "unintended" consequences, which enforcement quality exacerbates.

Marco Ghitti is Assistant Professor of Business Administration at Padua University. His research focuses on corporate governance, law and finance, and environmental finance. Prior to joining Padua University, he was Assistant Professor of Finance at SKEMA Business School and held teaching positions at Bocconi University and EDHEC Business School. Marco holds a BA and MSc from Bocconi University, a MSc in Finance from London Business School and a PhD in Finance from EDHEC Business School.