TECHNISCHE UNIVERSITÄT MÜNCHEN

Lehrstuhl für Betriebswirtschaftslehre -
Finanzmanagement und Kapitalmärkte

Three Essays on Law and Finance

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Vollständiger Abdruck der von der Fakultät für Wirtschaftswissenschaften der Technischen Universität München zur Erlangung des akademischen Grades eines

Doktors der Wirtschaftswissenschaften
(Dr. rer. pol.)

genehmigten Dissertation.

Vorsitzender: Prof. Dr. Sebastian Schwenen
Prüfer der Dissertation:
1. Prof. Dr. Christoph Kaserer
2. Prof. Dr. Reiner Braun

Die Dissertation wurde am 27.03.2018 bei der Technischen Universität München eingereicht und durch die Fakultät für Wirtschaftswissenschaften am 15.11.2018 angenommen.

Summary

This dissertation provides new evidence on the role of insolvency law[1] in corporate finance. Based on a new dataset of insolvency law in 20 countries and its main legal reforms over the period of 1985 to 2015, I[2] find that insolvency regimes: (i) differ in their design and have lengthy and costly procedures; (ii) tend to converge towards a restructuring regime that is similar to the one in the USA; (iii) exhibit a trend towards preventive restructuring proceedings avoiding lengthy and costly in-court proceedings. Second, I exploit the latest German insolvency law reform to show that a shift in the balance of power from firms to creditors can actually negatively affect firm borrowing. Third and finally, I exploit the staggered enactment of eight insolvency law reforms fostering corporate restructuring in the EU15 countries after 2008 to show that an emphasis on corporate restructuring increases firms' cost of debt. Overall, findings are consistent with the view that legal regimes are likely to converge in the future and that there might be a optimal level of investor protection from a corporate finance's perspective.

[1] In this dissertation, the term "insolvency law" is used as a generic term for bankruptcy, insolvency and restructuring laws.

[2] In this dissertation, I use the first-person singular narrative. However, this does not necessarily refer to myself directly as the second essay is based on joint work with my co-author, Daniel Urban.

"C'est pour toi et pas pour nous qu'il faut le faire."

Papa & Maman

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Nomenclature

BRIC	Brazil, Russia, India and China
DiD	difference-in-differences
e.g.	exempli gratia
et. al.	et alii
etc.	et cetera
EU15	Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom
FE	fixed effects
GDP	Gross Domestic Product
i.e.	id est
IPO	Initial Public Offering
JEL	Journal of Economic Literature
p.	page
no.	number
UK	United Kingdom
US	United States *(of America)*
USA	United States of America
vs.	versus

Contribution to Essays

Essay 1: Corporate Insolvency Law & Finance: Past, Present and Future

Authors: Frédéric Closset

I developed the research design, collected all the data, conducted all analyses, interpreted the results, and prepared and revised the manuscript.

Frédéric Closset

Essay 2: The Balance of Power between Creditors and the Firm: Evidence from German Insolvency Law

Authors: Frédéric Closset, Daniel Urban

I developed the research design, collected all the data, conducted all analyses, interpreted the results, and prepared and revised the manuscript. Daniel Urban supported me in setting up the research design, interpreting the results and editing the manuscript.

Frédéric Closset

Daniel Urban

Essay 3: Creditors and Corporate Restructuring? Evidence from European Insolvency Law

Authors: Frédéric Closset

I developed the research design, collected all the data, conducted all analyses, interpreted the results, and prepared and revised the manuscript.

Frédéric Closset

1. Introduction

In August 2017, Air Berlin[1] had to file for insolvency during the summer holiday season, leaving thousands of travelers stranded. The German government decided to provide Air Berlin with a bridge loan of €150mn, which helped to prolong Air Berlin's operations until October 2017. By that time, unsecured creditors' claims against the firm amounted to a total of €760mn and expenses of the insolvency procedure were estimated to €22mn (Der Spiegel, 2018). While secured creditors where able to enforce their security rights, unsecured creditors were left with the prospect of realizing Air Berlin's remaining assets with an estimated value of €88mn. However, in such a context, German insolvency law provides that expenses of the insolvency procedure and bridge financing loans are to be paid first out of the insolvent firm's estate. This implied that Air Berlin's unsecured creditors, from which many were private individuals that had bought a flight ticket, were not able to recover their funds, not even partially. The case of Air Berlin shows that, specifying the right balance of power between the firm and its stakeholders in the case of insolvency may be of crucial importance for each of these stakeholders when making decisions, but also for the overall financial system, as it may ultimately impact corporate finance.

Building on such examples, Rafael La Porta, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny published their article "Law and Finance" in 1998, which factually initiated the law and finance literature (La Porta et al., 1998). In their work, La Porta et al. (1998) hypothesize that by providing adequate legal protection of outside investors, the legal system may be able to limit the extent of expropriation by corporate insiders,

[1] At that time, Air Berlin was the second largest German commercial airline with 29mn transported passengers, a revenue of €3.8bn, and an EBIT of €-670mn in the fiscal year 2016 (Air Berlin, 2017).

and thus promote financial development (La Porta et al., 1997, 1998, 2008). This naturally follows from the propositions made by Jensen and Meckling (1976) and Myers and Majluf (1984) who argue that information asymmetries and conflicting interests between the firm and its investors affect corporate finance. As a result of these agency problems, investors may need to fear expropriation through shareholders or management, and thus they may be reluctant to provide firms with sufficient funds.

The seminal article by La Porta et al. (1998) was quickly followed by a substantial number of articles dealing with the legal protection of investors and its implications for financial actors and financial markets (e.g., La Porta et al., 1999, 2000a,b, 2002a,b). Evidence from those articles can be summarized in two propositions. First, financial development is higher when legal systems enforce private contracts and investor rights. Second, financial development results from a selected number of legal families that formed in Europe and spread to the world. Empirical findings of recent literature appear to be largely in line with these two propositions. However, findings were also subject to extensive critical discussions. Specifically, empirical results were criticized for their issues with endogeneity, i.e., reverse causality and omitted variables (e.g., La Porta et al., 2008; Siems and Deakin, 2010; Spamann, 2010). This criticism reveals the need for further research, which leaves traditional cross-sectional studies aside and focuses on a more detailed and causal study of the underlying law, e.g., by studying imminent effects resulting from legal reforms.

To reduce agency problems and increase financial development, many countries have therefore mandated laws to better protect investors. This is of particular importance when firms file for insolvency. Under financial distress, insolvency law regulates the competition among the firm's stakeholders over its assets (Aghion et al., 1994). Consequently, in general equilibrium, the resulting balance of power between the firm and its stakeholders determines the degree of satisfaction that each stakeholder can expect, and thus their ex-ante behavior (Fudenberg and Tirole, 1990; Hart, 2001; Bebchuk, 2002).

In this dissertation, I examine three research questions related to the impact of insolvency law on corporate finance, especially the balance of power between the firm and its stakeholders. The first study summarizes current findings by the law and finance literature

and reviews the status quo of insolvency law and its past development in a set of selected countries. The second study is related to insolvency law and its influence on corporate financing decisions. Specifically, I examine a legal reform of the balance of power between firms and their stakeholders and measure its effect on firms' capital structures. Finally, the third study shifts the focus towards specific features of the insolvency law and their impact on corporate cost of finance. Precisely, I study reforms aiming at fostering corporate restructuring and assess their implications for firms' cost of debt.

1.1. Research questions

1.1.1. Corporate Insolvency Law & Finance: Past, Present and Future

The first study of this dissertation focuses on the law and finance literature in general as well as on the status quo of insolvency law and its past development in a set of selected countries. Specifically, I summarize the existing law and finance literature and interpret its theoretical considerations, main empirical findings, and substantial criticism. Furthermore, I include a review of insolvency law and its main reforms in 20 selected countries including the EU15[2], BRIC and USA. I base this review on a new dataset providing information on: (i) the status quo of insolvency law in each country as of 2015; (ii) 42 main insolvency law reforms enacted from 1985 to 2015.

The law and finance theory builds on two distinct hypotheses (La Porta et al., 1998). The first hypothesis states that financial systems are more developed in countries where the legal system enforces private contracts and investor rights. The second hypothesis formulates that differences in financial development are a result of different legal origins that originated in Europe and then spread to the world. More specifically, legal origins impact financial systems through the "political channel" and the "adaptability channel" (Hayek, 1960). The political channel states that legal origins differ in the priority they attribute to private rights compared to state rights and that financial development depends on the level of protection of these private rights (Clark, 1986). The adaptability channel

[2] Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom (UK).

posits that legal origins differ in their legal formalism and flexibility, and that financial development is higher in legal origins that are able to adapt efficiently (Merryman, 1985). Empirical findings by the law and finance literature have shown to be largely in line with theoretical considerations but have also been widely criticized, most importantly for their issues with endogeneity, i.e., reverse causality and omitted variables (e.g., La Porta et al., 2008; Siems and Deakin, 2010; Spamann, 2010). Consequently, this criticism calls for further research, leaving traditional studies of the cross-section aside and focusing its empirical strategies on a more detailed and causal study of the underlying law, e.g., by studying imminent effects resulting from legal reforms, specifically insolvency law reforms. This study is particularly relevant for firms and their stakeholders when making decisions, but more generally also for the overall economic system since insolvency remains an important issue to governments and policymakers. In general, insolvency law aims at regulating the competition among the firm's stakeholders over its assets in the case of insolvency (Aghion et al., 1994). Its two main goals are to minimize ex-ante and ex-post inefficiencies by specifying the rights and the level of their protection assigned to the firm and its stakeholders (e.g., Hart, 1995; Cornelli and Felli, 1997; Hotchkiss et al., 2008). This results in a balance of power between the firm and its stakeholders, determining the degree of satisfaction they can expect in the case of failure (White, 2007), and thus defining their ex-ante behavior (e.g., Stiglitz and Weiss, 1981; Hart, 2001; Bebchuk, 2002).

To get a more detailed understanding on the balance of power between the firm and its stakeholders, I collect information on the insolvency law and on its main reforms for the 20 selected countries (EU15, BRIC and USA). I end up with a dataset providing information: (i) on the status quo of insolvency law as of 2015; (ii) on a total of 42 main insolvency law reforms enacted from 1985 to 2015. To the best of my knowledge, this dataset is unique with regards to the depth of the information gathered, the length of the time frame considered and the number of countries in scope. Descriptive analyses of this dataset suggest three main results. First, insolvency regimes in the sample differ in their insolvency law design and are nowadays still characterized by lengthy and costly insolvency procedures. Second, main insolvency law reforms within the period of 1985 to 2015 show

that insolvency regimes in the sample tend to converge towards a restructuring regime that is similar to the one currently active in the USA (Franken, 2004). Third, there exists an observable trend towards the establishment of preventive restructuring proceedings in order to avoid lengthy and costly in-court proceedings.

Overall, these findings are consistent with the view that insolvency regimes around the world are expected to show a stronger convergence in the future (La Porta et al., 2008). The above-mentioned trends might even be further encouraged and accelerated since propositions on optimal insolvency law design typically build their recommendations on US-like insolvency features and out-of-court proceedings (e.g., United Nations Commission on International Trade Law, 2005; European Commission, 2016).

1.1.2. The Balance of Power between Creditors and the Firm: Evidence from German Insolvency Law

The second study is related to insolvency law and its influence on corporate financing decisions. Specifically, I examine a legal reform of the balance of power between firms and their stakeholders and measure its effect on firms' capital structures. I exploit the German insolvency law reform passed in late 2011 ("Gesetz zur weiteren Erleichterung der Sanierung von Unternehmen", short "ESUG") to show that a shift in the balance of power from firms to creditors can actually negatively affect firm borrowing. Specifically, I posit that, when filing for insolvency in a strong creditor protection regime, the firm and its shareholders may fear the extent of power attributed to creditors. Therefore, firms may be reluctant to borrow in the first place.

Historically, Germany is a country where creditors were always relatively well protected. For example, the German Commercial Code ("Handelsgesetzbuch") is largely driven by the so-called "caution principle" ("Vorsichtsprinzip"), which requires firms to prepare their financial statements conservatively so that creditors' assessment of a firm is not clouded. In this setting, ESUG, intended to both update German insolvency law and to increase its attractiveness relative to other European insolvency regimes. For this, ESUG implemented a set of new tools that aimed at strengthening creditor protection and facilitating firm

restructuring. Among other things, the law introduced a preliminary creditors' committee in the early phase of insolvency proceedings. This committee is entitled to appoint the preliminary insolvency administrator that is to become insolvency administrator in main insolvency proceedings. During insolvency proceedings, the insolvency administrator is entitled to manage the firm's assets while driving the insolvency procedure. In the case of liquidation, he determines the insolvency estate's value and its distribution to creditors. In the case of restructuring, he develops an insolvency plan that is subject to creditors' approval. Consequently, ESUG resulted in greater creditor power and influence near and during insolvency proceedings since the insolvency administrator has considerable influence on the outcome of the insolvency procedure.

From an econometric point of view, I can use the introduction of a preliminary creditors' committee for identification. In particular, the appointment of a preliminary insolvency administrator by the preliminary creditors' committee is only required for German firms that are at least medium-sized, while being optional for small-sized German firms. However, anecdotal evidence from insolvency practitioners suggests that the voluntary summoning of a preliminary creditors' committee in small firm insolvencies remains unattractive, and thus rarely used, due to its costs in terms of time and financial resources. Since there is no other rule related to ESUG that applies to the same size threshold, I can perform a difference-in-differences analysis and compare the development of financial leverage of larger to smaller firms around this event. This allows me to identify the causal impact of changes in creditor protection on a firm's financial leverage.

For the empirical analysis, I rely on a set of 284 German firms over the 2009 to 2013 period. After treatment, I observe that larger firms above the size threshold reduced financial leverage relative to their smaller counterparts by about five percentage points. Further analysis reveals that the reduction in financial leverage can be explained by a shift from debt to equity, and more specifically by the reduction of short-term leverage. Finally, I find evidence that smaller firms benefit from lower average interest rates after the introduction of ESUG. I also show that larger firms reduce investment after the introduction of ESUG. In contrast, smaller firms increase both leverage and investment in the aftermath of the

introduction of ESUG.

Overall, the evidence is consistent with the view that greater creditor protection results in a more costly insolvency procedure from the shareholder perspective. To avoid further losses of control, firms try to avoid debt, which, in turn, hinders investment and, ultimately, firm growth. In contrast, smaller firms may have benefited from the introduction of a preliminary creditors' committee, as it may have increased available debt supply because demand by larger firms has decreased.

1.1.3. Creditors and Corporate Restructuring? Evidence from European Insolvency Law

Finally, the third study shifts the focus towards specific features of the insolvency law and their impact on corporate cost of finance. Precisely, I study reforms aiming at fostering corporate restructuring and assess their implications for firms' cost of debt. I exploit the staggered enactment of eight insolvency law reforms fostering corporate restructuring in the EU15 countries after 2008 to show that an emphasis on corporate restructuring increases firms' cost of debt. I posit that, by increasing incentives to restructure, the insolvency regime might encourage restructuring of non-viable firms, and therefore lead to higher agency and opportunity costs from the creditor's perspective. As a result, creditors may demand higher risk premia to compensate for increased risks and costs.

In the past, multiple EU15 countries have reformed their insolvency law, tending to develop towards an US-like system that emphasizes corporate restructuring (Franken, 2004; Closset, 2017). Especially following the financial crisis of 2008 and the subsequent European sovereign debt crisis of 2009, EU15 countries reformed their insolvency law in order to help viable firms restructure. While the reforms may have varied with respect to their scope, exact formulations and timing, they all shared the common objective of establishing a legal regime encouraging firms to forgo liquidation in favor of corporate restructuring. This was achieved by introducing new types of insolvency proceedings such as pre-insolvency or out-of-court restructuring proceedings, or by facilitating existing procedures by providing them with helpful provisions such as a stay on creditor enforcement or the possibility to

attract bridge financing with super-seniority.

From an econometric point of view, I can use the staggered introduction of these insolvency law reforms for identification. This setting establishes that only firms incorporated in countries introducing a reform are required to comply with the new legal provisions, and ensures that any decisions are not voluntary decisions by the firm or its owners and managers. As a consequence, I can perform staggered difference-in-differences analyses to compare the development of firms' cost of debt around these reforms. This allows me to identify the causal impact of a country's increased corporate restructuring focus on firm's cost of debt.

For the empirical analysis I rely on the study of eight major insolvency law reforms in Austria, Belgium, Germany, Greece, Italy, Portugal and Spain. Each of these reforms was introduced between 2008 and 2014 and aimed at fostering corporate restructuring. I complement these data with firm-level accounting data for a sample of 17,006 firms and 102,036 firm-year observations between 2006 and 2016. After treatment, I observe that firms in countries which have introduced insolvency law reforms fostering corporate restructuring experienced an average increase in the cost of debt of 0.5% or 50 basis points compared to firms in countries that have not introduced any insolvency law reforms over the same period. Further analysis reveals that the effect is even more pronounced for firms closer to default while vanishing for firms far from default. Finally, I find evidence that the introduction of the same insolvency law reforms did not impact firms' financial leverage and cost of equity.

Overall, the results suggest that creditors may fear an increase in the restructuring of non-viable firms, and therefore demand higher risk premia to cover additional agency and opportunity costs. By contrast, firms and their managers seem to be willing to pay the price for this shift of power in their favor. Their expected benefits from being able to engage in the restructuring of non-viable firms and benefit from protection against creditor enforcement may outweigh increased cost of debt. Finally, shareholders seem to be indifferent with respect to corporate restructuring, as their chances of receiving additional proceeds after the insolvency procedure may not be impacted in a substantial

way.

1.2. Contribution and implications

Overall the dissertation contributes to a better understanding of the relationship between law and finance, specifically the role of insolvency law in shaping corporate finance. First, based on the analysis of a new dataset on insolvency law and its main reforms, I find that insolvency regimes: (i) differ in their legal design and are characterized by lengthy and costly procedures; (ii) tend to converge towards a restructuring regime that is similar to the one in the USA; (iii) exhibit a trend towards preventive restructuring proceedings avoiding lengthy and costly in-court proceedings. In doing so, I add to the literature of law and finance in general. So far, a vast majority of scholars has relied on empirical proxies proposed by La Porta et al. (1998) and cross-sectional analyses of the legal status quo to study the relationship between law and finance (e.g., La Porta et al., 1998; Levine, 1998, 1999; Demirgüç-Kunt and Levine, 2004; Djankov et al., 2007, 2008a,b; La Porta et al., 2008). In contrast to them, I present a detailed study of cross-country insolvency law and its development by means of legal reform. By leaving empirical proxies aside and collecting time series data, I am able to identify global trends in insolvency law and distinguish policy effects on a more granular level. Consequently, this dissertation not only has important implications for governments and policymakers, but also for scholars in the field of law and finance.

Second, based on the enactment of the latest German insolvency law reform, I show that in an environment where creditors are already well protected, even stronger creditor protection does not necessarily foster borrowing. By doing so, I add to the literature studying the influence of creditor rights on credit markets (e.g., Djankov et al., 2007; Haselmann et al., 2010; Deakin et al., 2015). Furthermore, the findings contribute to the literature on the determinants of capital structure (e.g., Rajan and Zingales, 1995) by showing that changes in adverse selection costs as a result of better creditor protection affect a firm's capital structure. Finally, this work is related to theoretical frameworks by Jensen and Meckling (1976), Leland and Pyle (1977), or Myers and Majluf (1984).

In this regard, my dissertation has an important implication. Most of the literature on creditor protection argues that better creditor protection increases debt supply (e.g., La Porta et al., 1997, 1998; Levine, 1998, 1999; Djankov et al., 2007; La Porta et al., 2008). In contrast, I show that, even though credit supply may increase due to lower adverse selection costs to creditors, firms may actually forgo debt capital because together with their shareholders they may fear the extent of creditor power when creditors are too well protected. Overall, the evidence suggests that there may be a optimal level of creditor protection, and that beyond a certain threshold, debt becomes too costly for shareholders, which is why they may become reluctant to borrow.

Third, based on the staggered enactment of insolvency law reforms fostering corporate restructuring, I find that creditors may fear an increase in the restructuring of non-viable firms after these reforms, and therefore demand higher risk premia to compensate for increased agency and opportunity costs. Thereby, I add to the literature studying the relationship between legal provisions and firms' cost of financing (Scott and Smith, 1986; Araujo et al., 2012; Vig, 2013; Hackbarth et al., 2015; Rodano et al., 2016). Furthermore, I complement the literature analyzing direct (Weiss, 1990; Franks and Torous, 1994; Bris et al., 2006) and indirect costs of the insolvency procedure (Levine, 1998, 1999; Franks and Sussman, 2005; Qian and Strahan, 2007; Djankov et al., 2007, 2008a; Bae and Goyal, 2009; Benmelech and Bergman, 2011) by showing that an increase in firms' cost of debt following reforms of corporate restructuring might reflect higher agency costs and opportunity costs from the creditor's perspective. Finally, I add to the theoretical literature on optimal insolvency law and corporate restructuring (White, 1989; Fudenberg and Tirole, 1990; Gertner and Scharfstein, 1991; Aghion et al., 1994; Hart, 1995; Cornelli and Felli, 1997; Hart and Moore, 1998; Hart, 2000, 2001; Hotchkiss et al., 2008). Consequently, this dissertation has important implications for firms, creditors and policymakers in the EU15 but also around the world. In the past, many countries have initiated a transition of their insolvency law towards a US-like restructuring regime (Franken, 2004; Closset, 2017). In contrast, I present results suggesting that the fostering of corporate restructuring might also bring negative implications to firms, especially when they are closer to default. By

increasing incentives to restructure, the insolvency regime might also encourage restructuring of non-viable firms, and therefore lead to higher agency and opportunity costs from the creditor's perspective. Overall, the evidence suggests that it is important to set the right incentives for corporate restructuring, and therefore highlights the importance of well-balanced insolvency law.

1.3. Structure

The remainder of this dissertation is organized as follows. In Chapter 2, I present an overview on the existing law and finance literature followed by a review of insolvency law in a selected set of countries. In Chapter 3, I examine changes in the balance of power between creditors and the firm and present empirical results suggesting implications for firms' capital structures. In Chapter 4, I study reforms of a country's focus on corporate restructuring and report results indicating consequent implications for firms' cost of finance. Finally, in Chapter 5, I provide conclusions, implications, and suggestions for future research.

2. Corporate Insolvency Law & Finance: Past, Present and Future

Abstract

The existing literature on law and finance mandates that investor protection and legal origin impact the balance of power between the firm and its stakeholders. Its critics call for additional research studying the underlying law in more detail and addressing the existing endogeneity issues. I focus this paper on the role of insolvency law in the context of the firm and its stakeholders. Based on the analysis of a new dataset on insolvency law in 20 countries and their main insolvency law reforms over the period of 1985 to 2015, I find that insolvency regimes: (i) differ in their legal design and are characterized by lengthy and costly procedures; (ii) tend to converge towards a restructuring regime that is similar to the one in the USA; (iii) exhibit a trend towards preventive restructuring proceedings avoiding lengthy and costly in-court proceedings. Overall, findings are consistent with the view that legal regimes are likely to converge in the future.

Keywords: law, finance, bankruptcy, insolvency, restructuring
JEL Codes: G30, G33, G38

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Current status: Working Paper

2.1. Introduction

Ever since the seminal work by La Porta et al. (1998), researchers have engaged in a vivid discussion on the existence and the extent of a relationship between law and finance. Building upon past theoretical considerations by Modigliani and Miller (1958), Jensen and Meckling (1976), and Myers and Majluf (1984), scholars posit that a country's laws and the extent of their enforcement impact the rights of financial actors, and thus financial systems. This is of particular importance when firms file for insolvency. Under financial distress, the legal regime regulates the stakeholder's rights and obligations, and thus ultimately determines their expectations and behavior (e.g., Aghion et al., 1994; Hart, 2001).

In this paper, I summarize the existing law and finance literature and interpret its theoretical considerations, main empirical findings, and substantial criticism.[1] Furthermore, I include a review of insolvency law[2] and its main reforms in 20 selected countries including the EU15, BRIC and USA[3]. I base this review on a new dataset providing information on: (i) the status quo of insolvency law in each country as of 2015; (ii) 42 main insolvency law reforms enacted from 1985 to 2015.

The law and finance theory builds on two distinct hypotheses (La Porta et al., 1998). The first hypothesis states that financial systems are more developed in countries where the legal system enforces private contracts and investor rights. The second hypothesis formulates that differences in financial development are a result of different legal origins that originated in Europe and then spread to the world. Even more specifically, legal origins impact financial systems through the "political channel" and the "adaptability channel" (Hayek, 1960). The political channel states that legal origins differ in the priority they attribute to private rights compared to state rights and that financial development depends on the level of protection of these private rights (Clark, 1986). The adaptability

[1] It should be clear that this paper has a limited purpose and may not incorporate all the facets of the subject. Other summaries of the law and finance literature can be found in Beck and Levine (2005), Levine (2005) or La Porta et al. (2008).

[2] In this paper, the term "insolvency law" is used as a generic term for bankruptcy, insolvency and restructuring laws. Furthermore, I do not investigate legal provisions that deal with personal insolvency or that specifically target the insolvency of firms from within the financial sector.

[3] The sample consists of the EU15 countries (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom (UK)), the BRIC countries (Brazil, Russia, India, China) and the United States of America (USA).

channel posits that legal origins differ in their legal formalism and flexibility, and that financial development is higher in legal origins that are able to adapt efficiently (Merryman, 1985).

The work by La Porta et al. (1998) has led to extensive discussions among scholars over the past decades. Empirical findings have shown to be largely in line with theoretical considerations but have also been widely criticized, most importantly for their issues with endogeneity, i.e., reverse causality and omitted variables (e.g., La Porta et al., 2008; Siems and Deakin, 2010; Spamann, 2010). Consequently, this criticism calls for further research, leaving traditional studies of the cross-section aside and focusing its empirical strategies on a more detailed and causal study of the underlying law, e.g., by studying imminent effects resulting from legal reforms, specifically insolvency law reforms.

This study is particularly relevant for firms and their stakeholders when making decisions, but more generally also for the overall economic system since insolvency remains an important issue to governments and policymakers.[4] In general, insolvency law aims at regulating the competition among the firm's stakeholders over its assets in the case of insolvency (Aghion et al., 1994). Its two main goals are to minimize ex-ante and ex-post inefficiencies by specifying the rights and the level of their protection assigned to the firm and its stakeholders (e.g., Hart, 1995; Cornelli and Felli, 1997; Hotchkiss et al., 2008). In the long-run, the ultimate goal of the insolvency regime is to act as a screening mechanism, separating financially distressed but economically viable firms from inefficient, non-viable ones (White, 1989; Gertner and Scharfstein, 1991).

This results in a balance of power between the firm and its stakeholders, determining the degree of satisfaction they can expect in the case of failure (White, 2007), and thus defining their ex-ante behavior (e.g., Stiglitz and Weiss, 1981; Hart, 2001; Bebchuk, 2002). The two ends of this spectrum are as follows: a fully debtor-friendly code in which the debtor retains full control of the firm despite defaulting, or a fully creditor-friendly code in which all ownership rights are transferred to the creditors (Acharya and Subramanian, 2009).

[4] Nowadays, firm insolvencies are still a relevant topic even in developed economies as in, e.g., Germany which saw 21,518 cases of corporate default with a cumulative claim volume of €27.4bn in 2016 (Statistisches Bundesamt, 2017)

To get a more detailed understanding on the balance of power between the firm and its stakeholders, I collect information on the insolvency law as of 2015 and on its main reforms enacted between 1985 and 2015 for the 20 countries in the sample (EU15, BRIC and USA). Together with research assistants I successively search national insolvency laws and public governmental resources for respective information. For reasons of robustness and consistency I validate the gathered information in a two-step process. First, I define country clusters and ensure that each country cluster is researched by at least two research assistants independently from one another. The respective results are then compared and consolidated by myself. Second, where necessary, I require information to be cross-checked with insolvency practitioners, insolvency guides provided by leading international law firms and newspaper articles. By doing so, I ensure that all legal reforms in the sample are reforms considered to be highly relevant for the country's insolvency law development because they altered it in a significant way.

I end up with a dataset providing information for the 20 countries in the sample: (i) on the status quo of insolvency law as of 2015; (ii) on a total of 42 main insolvency law reforms enacted from 1985 to 2015. To the best of my knowledge, this dataset is unique with regards to the depth of the information gathered, the length of the time frame considered and the number of countries in scope.

Descriptive analyses of this dataset suggest three main results. First, insolvency regimes in the sample differ in their insolvency law design and are nowadays still characterized by lengthy and costly insolvency procedures. Second, main insolvency law reforms within the period of 1985 to 2015 show that insolvency regimes in the sample tend to converge towards a restructuring regime that is similar to the one currently active in the USA (Franken, 2004). Third, there exists an observable trend towards the establishment of preventive restructuring proceedings in order to avoid lengthy and costly in-court proceedings. In the future, these trends will most likely persevere and may lead to a stronger convergence of insolvency law regimes around the world (La Porta et al., 2008). They might even be further encouraged and accelerated since propositions on optimal insolvency law design typically build their recommendations on US-like insolvency features and out-of-court

proceedings (e.g., United Nations Commission on International Trade Law, 2005; European Commission, 2016).

The paper adds to the literature of law and finance in general. So far, a vast majority of scholars has relied on empirical proxies proposed by La Porta et al. (1998) and cross-sectional analyses of the legal status quo to study the relationship between law and finance (e.g., La Porta et al., 1998; Levine, 1998, 1999; Demirgüç-Kunt and Levine, 2004; Djankov et al., 2007, 2008a,b; La Porta et al., 2008). Few scholars have then addressed the resulting endogeneity issues by relying on the study of insolvency law reforms (e.g., Scott and Smith, 1986; Djankov et al., 2007; Araujo et al., 2012; Vig, 2013; Hackbarth et al., 2015). In contrast to them, I present a detailed study of cross-country insolvency law and its development by means of legal reform. By leaving empirical proxies aside and collecting time series data, I am able to identify global trends in insolvency law and distinguish policy effects on a more granular level. The collected dataset may serve as a basis for future research empirically examining the existing law and finance theory from a more detailed perspective of insolvency law reforms in a cross-country setting.

This paper has important implications for governments and policymakers, but also scholars in the field of law and finance. First, it presents a summary of the existing law and finance literature, its theoretical considerations, main empirical findings, and substantial criticisms as of today. Second, it assesses the status quo of insolvency law in a set of selected countries and provides insights on current trends and developments. Third, it provides an overview on main legal reforms altering the insolvency law in a significant way. Overall, the papers' findings are in line with existing research (Franken, 2004) and may be helpful as a basis for future empirical research.

The remainder of this paper is organized as follows. Section 2.2 summarizes the law and finance theory. Section 2.3 provides an overview of current empirical findings by law and finance scholars. Section 2.4 presents criticism to the existing literature. Section 2.5 consists of a review of theoretical insolvency law and practical implications from the descriptive analysis of a new dataset on insolvency law and its main legal reforms. Finally, Section 2.6 concludes with a summary of findings and implications.

2.2. Law and finance: Theoretical considerations

The theory of law and finance is a product of the continuous evolution of corporate finance theory (La Porta et al., 2000b). Modigliani and Miller (1958) first introduced a connection between law and finance by stating that debt and equity constitute legal claims on a firm's cash flows, and thus established a concept of competition between debt and equity. Amongst others, Jensen and Meckling (1976), Myers and Majluf (1984), Fama and Jensen (1983a) and Fama and Jensen (1983b) argued that private contracts are used to address the firm's agency problems and that these contracts are shaped by the law and the extent to which it is enforced by courts. Finally, scholars focused their research on control rights provided by financial securities and the impact of legal provisions on corporate control (Hart, 1995). Consequently, finance might be seen as a set of contracts between the firm, its shareholders and its creditors. Therefore, it seems obvious that a country's laws and their enforcement fundamentally impact the rights of financial actors, and thus financial systems.

2.2.1. Law and finance

The law and finance theory concentrates on the role of legal regimes in explaining cross-country differences in financial development (La Porta et al., 1997, 1998, 2000b). It consist of two distinct hypotheses. The first hypothesis states that financial systems are more developed in countries where the legal system enforces private contracts and investor rights. Cross-country differences in contract, company, insolvency and securities law, the emphasis on private property rights and the efficiency of enforcement exert influence on a financial actor's willingness to participate in financial markets (Beck and Levine, 2005). The second hypothesis - also known as the theory of legal origins - formulates that cross-country differences in financial development are a result of the different legal origins that have been formed in Europe and that spread to the world over the following centuries.
Interestingly, there are differing views among scholars on whether the legal system should support private contracting or provide explicit provisions protecting investor rights. On the one hand, legal systems could simply enforce private contracts without providing any

legal protection investors. However, this approach would necessitate skilled, motivated and effective legal institutions willing to enforce private contracts, and experienced investors designing adequate private contracts (Coase, 1960; Stigler, 1964; Easterbrook and Fischel, 1996; Glaeser et al., 2001). On the other hand, given the difficulty to enforce complex private contracts, it might be advantageous to develop a legal system providing sufficient investor protection together with a framework for financial transactions. This second approach would lower transaction costs, and thus improve the financial market's overall efficiency. However, it would negatively affect efficient private contracting (Glaeser et al., 2001; Pistor and Xu, 2004).

2.2.2. Legal origins

Legal scholars argue that a majority of the world's legal systems emerged from four legal families that originated in Europe and then spread to the globe through occupation, colonization and/or imitation (Merryman, 1985; David and Brierley, 1985; Reynolds and Flores, 1989; Zweigert and Kötz., 1998). They rely on these legal families to argue that legal origin shapes cross-country differences in financial development. They posit that a legal family's stance on private versus state rights, its affinity for jurisprudence, its extent of judicial discretion, and its degree of procedural formalism impact financial actors and financial systems around the world.

These four legal families differ, e.g., with respect to their affinity for jurisprudence, and can be divided into two categories. First, the case-based English common law system that originated in Britain and second, the code-based civil law system that originated in Continental Europe. Specifically, civil law can be further divided into German civil law, French civil law and Scandinavian civil law.

English common law originated from a dispute between the British Crown and the British Parliament. Following abuses of power by the British Crown, the British Parliament chose to side with private property owners and placed the law above the Crown. The English common law is characterized by a favorable view on jurisprudence, provides for judicial discretion, and little procedural formalism. In contrast to civil law, it focuses on decisions

in concrete cases rather than on the logic of codified laws. Finally it allows judges to interpret and create law to adapt to evolving circumstances.

German civil law was consolidated and codified by Bismarck, following the country's unification in the 19^{th} century. Its legal system is considered dynamic because it allows for a public access to court documents, and thus for an open discussion between legal scholars and the judiciary. Therefore, German civil law is characterized by a positive stance on jurisprudence and judicial review. To that time, French civil law had already been codified by Napoleon during and following the French Revolution. Napoleon's Code Civil followed the concept of a gap-less and conflict-free law, leaving no room for law-making by legal interpretation. Since then, the French legal system gradually allowed for increasing judicial discretion in order to address its own legal inefficiencies. Nowadays, French civil law is characterized by the state being placed above the law, a rather negative view on jurisprudence and increased procedural formalism. Finally, Scandinavian civil law developed independently from French and German civil law. Contrary to French civil law, Scandinavian civil law relies on jurisprudence and does not place the state above the law. Over time, these four legal families have spread internationally through occupation, colonization and/or imitation. Napoleon installed French civil law in conquered territories, e.g., Italy or the Netherlands, which then spread to Latin America through its influence on Spanish and Portuguese Law. German civil law was developed at the same time as Austrian law and later used as a blueprint by Asian countries, e.g., China. Scandinavian civil law did not spread beyond Northern European countries. Similar to French civil law, English common law was installed and rooted in the British colonies, e.g., the USA or India.

2.2.3. Political and adaptability channels

Hayek (1960) defines two inter-related channels through which legal origins impact financial development: the "political channel" and the "adaptability channel" (La Porta et al., 2000b; Beck et al., 2003a; Beck and Levine, 2005). The political channel states that legal origins differ in the priority they attribute to private rights versus state rights and that

financial development depends on the level of protection of these private rights (Clark, 1986; Shleifer and Vishny, 1997). The adaptability channel posits that legal origins differ in their legal formalism and flexibility, and that financial development is higher in legal origins that are able to efficiently adapt to changing environments (Merryman, 1985).

In this context, it is important to note that the political channel and the adaptability channel make partially conflicting predictions regarding the financial development of French civil law and German civil law countries. On the one hand, the political channel states that historical differences in legal origin help to explain today's differences in financial development (La Porta et al., 1998). Historically, common law tended to side with private investors, while civil law placed the rights of the state above all (Coffee, 1999; Johnson et al., 2000). This would imply that civil law countries should be less financially developed than common law countries.

On the other hand, the adaptability channel states that legal origins that are efficient and flexible will show higher levels of financial development (Merryman, 1985). Generally, common law with its system of case law and its less of judicial formalism was always considered efficient and flexible (Rubin, 1977). However, civil law with its statutory law, and especially French civil law with its negative stance on judicial discretion, tended to be less efficient and developed more slowly (Bailey and Rubin, 1994). This results in the prediction that French civil law countries should be less financially developed than other civil law and/or common law countries, which partially contradicts previous predictions by the political channel.

2.3. Law and finance: Empirical evidence

Over the past two decades, law and finance scholars developed a set of propositions that theorize the relationship between judicial and financial systems. The seminal hypotheses by La Porta et al. (1998) have led to extensive discussions amongst corporate governance, corporate finance and legal scholars worldwide. As a result, subsequent research has focused on examining and understanding the empirical evidence of these theoretical propositions.

2.3.1. Legal origin and financial development

To measure legal origin La Porta et al. (1998) rely on data provided by Reynolds and Flores (1989) regarding the history of a country's national law. Based on this information they construct an international dataset of legal origin that many scholars use to examine the relationship between legal origin and financial development.

Based on this dataset La Porta et al. (1997, 1998) find that French civil law countries are less financially developed than common law or other civil law countries. Specifically, French civil law countries tend to have smaller equity markets, experience less IPOs and show lower levels of bank credit. This view is confirmed by findings that suggest that common law countries have superior equity markets than civil law countries (Beck et al., 2001).

These findings are further are further validated by scholars expanding the original dataset by La Porta et al. (1998) and using various alternative measures of financial development (Levine, 1998, 1999; Levine et al., 2000; Levine, 2002; Beck et al., 2006; Djankov et al., 2007; La Porta et al., 2008). They find that legal origins help to explain cross-country differences in financial development and that French civil law countries tend to have smaller equity markets. They also investigate whether legal origin influences economic growth through financial development (King and Levine, 1993; Levine, 1998; Levine and Zervos, 1998; Levine, 1999; Levine et al., 2000; Mahoney, 2001). Specifically, they find that legal origin impacts the development of financial intermediaries and equity markets, and thus explain cross-country differences in economic growth. However, these claims are also contested in more recent work (La Porta et al., 2008; Klerman et al., 2011).

Building on these results, scholars try to identify whether legal origin primarily acts through the political or the adaptability channel (Beck et al., 2003a; La Porta et al., 2004). Their results are consistent with theoretical predictions along three dimensions and suggest that the adaptability channel primarily influences financial development. First, in civil law countries the state grants less judicial independence and flexibility than in common law countries. Second, in French civil law countries judicial decisions are not as likely to shape legislation as in common law and other civil law countries. Third, in

contrast to the political channel, cross-country differences in financial intermediary development, equity market development and investor rights protection are explained by the adaptability channel.

Finally, they study the impact of legal formalism and judicial efficiency on financial development. Consistent with theoretical predictions, they find that common law countries are characterized by less legal formalism, and thus higher efficiency of proceedings (Djankov et al., 2003a,b). With respect to financial development they find that legal formalism negatively impacts equity markets (Acemoglu and Johnson, 2005).

2.3.2. Legal origin and investor protection

La Porta et al. (1998, 2008) also examine the relationship between legal origin and the extent to which a country's law protects outside investors. From a theoretical point of view they argue that legal systems in which shareholders and creditors are well-protected have better functioning debt and equity markets, and thus favor capital allocation (North, 1990). They define a shareholder rights index and a creditor rights index to study the empirical link between legal origin and investor rights. To construct the respective indices they define a set of relevant legal criteria and check their fulfillment based on the assessment of each country's national law. For each criterion they code the result of their assessment in a binary variable. The shareholder rights and creditor rights indices correspond to the sum of the respective relevant sub-criteria (e.g., proportional representation of minority shareholders on the board of directors or secured creditors being able to enforce their security rights in restructuring proceedings). Higher values of the shareholder rights or creditor rights indexes indicate greater shareholder or creditor rights.

Results suggest that French civil law countries have lower levels of shareholder rights in contrast to common law countries (La Porta et al., 1998, 2008). This is consistent with findings indicating that lower levels of shareholder rights result in poorly developed equity markets (La Porta et al., 1997; Levine, 2002). Additionally, La Porta et al. (2006) show that financial development is higher when legal provisions force information disclosure and facilitate private enforcement. They highlight that French civil law countries lack private

contract enforcement compared to common law countries due to weak legal provisions and weak requirements on information disclosure. This contradicts findings which support the view that, instead of private enforcement, public enforcement and information disclosure foster financial development (Roe and Jackson, 2009).

Adding to this, La Porta et al. (1998) find that common law countries have higher levels of creditor rights in comparison to French civil law countries. This evidence is supported by results showing that positive development of financial intermediaries is a result from higher levels of creditor rights and more effective private contract enforcement (La Porta et al., 1997; Levine, 1998, 1999). Consistently, La Porta et al. (2000b) postulate that law and finance better explains corporate finance than the theory of bank-based and market-based financial systems. Finally, findings suggest that legal origin drives not only the degree of investor protection, but that it is also a function of debt enforcement and the presence of public credit registries (Djankov et al., 2007, 2008a).

2.3.3. Investor protection and corporate finance

La Porta et al. (1998, 2008) posit that the legal protection of shareholders and creditors impacts the operation of debt and equity markets, and thus a firm's corporate financing decisions. Consequently, many scholars have examined this relationship between investor protection and corporate finance from multiple angles. Often, but not exclusively, they relied on the shareholder rights and creditor rights indices as proposed by La Porta et al. (1998) to measure the effect of shareholder and/or creditor protection in a standard agency model (Shleifer and Wolfenzon, 2002). In the following, I provide a summary of the main empirical findings from these studies. I start by summarizing the literature on firm financing and capital structure. I then move on to focus on implications for investment decisions and corporate valuation. Finally, I present findings on benefits of control and corporate ownership.

Scholars argue that higher levels of creditor protection induce lower cost of debt and vice versa (Scott and Smith, 1986; Qian and Strahan, 2007; Bae and Goyal, 2009; Araujo et al., 2012). Indeed, lower creditor protection induces more restrictive debt covenants as a

mechanism to overcome legal deficiencies (Miller and Reisel, 2011). Consistently, findings show that a shift in power from creditors to shareholders results in lower cost of equity (Hackbarth et al., 2015). In contrast, well-protected shareholder rights lead to higher dividends (La Porta et al., 2000a). However, creditors might also want to contract around higher shareholder rights by demanding more restrictive payout policies as a substitute, and thus reverse the rise in the cost of equity (Brockman and Unlu, 2009; Vig, 2013).

Interestingly, empirical evidence on implications of the relationship between investor protection and firm capital structure is mixed. While some scholars argue that firms reduce leverage under higher creditor protection (Acharya and Subramanian, 2009; Acharya et al., 2011; Cho et al., 2014; Vig, 2013), other scholars find that firms react to higher available debt supply under better creditor protection by increasing their leverage (Giannetti, 2003; Cheng and Shiu, 2007). Further results suggest that capital structures are subject to a shift from short-term to long-term leverage under higher creditor protection (Demirgüç-Kunt and Maksimovic, 1998; Araujo et al., 2012; Cho et al., 2014). Adding to this, results indicate that better creditor and shareholder protection help to efficiently redirect funds from declining to growing firms, but also benefit growing firms by providing them with easier access to financing (Demirgüç-Kunt and Maksimovic, 1998; Wurgler, 2000; Beck and Levine, 2002).

More specifically, cross-country differences in creditor rights lead banks to adjust their lending practices to mitigate resulting risks and costs. In legal systems with weak protection of creditors, banks require more collateral to address potential dilution of their claims (Claessens and Laeven, 2003; Franks and Sussman, 2005; Davydenko and Franks, 2008). Consistently, increasing creditor protection leads banks to increase their credit supply and risk taking (Bae and Goyal, 2009; Houston et al., 2010). This effect is particularly high for foreign banks that might see an increase in creditor protection as a mechanism to mitigate their informational disadvantages (Haselmann et al., 2010). Generally, scholars agree that banks are critical for firm financing and better developed in countries with higher creditor rights and efficient enforcement of private contracts (e.g., Beck and Levine, 2002; Demirgüç-Kunt and Maksimovic, 2002; Levine, 2002; Demirgüç-Kunt and Levine, 2004).

At the same time scholars examine the impact of investor protection on the efficiency of capital allocation. Their results indicate that in countries where small outside investors are well-protected the flow of capital is more efficiently redirected from declining firms to growing firms (Wurgler, 2000; Beck and Levine, 2002). Additionally, higher investor protection benefits faster growing firms in the way that they have less difficulties to obtain financing (Demirgüç-Kunt and Maksimovic, 1998).

Generally, scholars argue that creditor protection positively impacts corporate investment because firms are more inclined to invest when they are better protected (Johnson et al., 2002; Giannetti, 2003; Rodano et al., 2016). Specifically, higher creditor protection fosters large corporate investments together with investments into more diversified targets (Benmelech and Bergman, 2011; Acharya et al., 2011). This is consistent with the view that firms are financially constrained under weak creditor protection and therefore value cash to a higher extent (Pinkowitz et al., 2003; Kyröläinen et al., 2013).However, it is noteworthy that recent evidence also suggests a negative relationship between creditor protection and corporate investment (Favara et al., 2017).

Consistently, firm valuation is usually perceived as being positively correlated with investor protection (Rajan et al., 2001; Beck et al., 2003b; Claessens et al., 2002; La Porta et al., 2002b). In particular, shareholder protection is considered as a mechanism to mitigate weak corporate governance provisions, which results in higher announcement effects for cross-border merger and acquisitions when shareholder protection is high (Bris and Cabolis, 2008). Higher creditor protection, however, might induce value-reducing effects through corporate investment activities with a negative value to the firms (Acharya et al., 2011). This contradicts the view that creditor protection favors innovation and productivity via large investments (Benmelech and Bergman, 2011). In contrast, evidence also suggests that high levels of creditor protection might actually inhibit firm innovation in already innovative industries (Acharya and Subramanian, 2009).

Weak shareholder protection might also increase shareholder incentives for benefits from private control, and thus encourage wealthy investors to become controlling shareholders (Grossman and Hart, 1988; Harris and Raviv, 1988; Giannetti and Koskinen, 2010) Poten-

tial benefits of control are then attenuated by better protection of minority shareholders and better legal enforcement (Zingales, 1994; Dyck and Zingales, 2004; Cho et al., 2014). Consistently, participation in the domestic equity market and the equity home bias are positively related to shareholder protection (Giannetti and Koskinen, 2010). In contrast, under weak shareholder protection, dissipating control over a smaller number of investors might also help to limit expropriation fears (Bennedsen and Wolfenzon, 2000).

This is consistent with the view that investors adapt their levels of corporate ownership depending on their legal protection. Specifically, scholars argue that shareholders gain in confidence when they know that their rights are well-protected, and that the need for concentrated ownership as a mitigation mechanism of corporate governance problems is consequently reduced (La Porta et al., 1998, 1999; Claessens et al., 2000; La Porta et al., 2000b). Consistently, lower creditor protection induces declines in government ownership and bank ownership, especially by foreign banks with an informational disadvantage compared to to domestic banks (La Porta et al., 2002a; Qian and Strahan, 2007).

2.4. Law and finance: Criticism

The theory of law and finance is not undisputed and has led to considerable discussions over the past decades. Criticism is manifold and can be consolidated into five dimensions ranging from observed differences between common law and civil law to methodological criticism regarding endogeneity, i.e., reverse causality and omitted variables. In the following, I provide a short summary on the existing literature regarding each major point of criticism.

In general, there is doubt with respect to the comparability of common law and civil law. The criticism mainly focuses on three main points. First, scholars question whether common law generally values private investor rights higher than state rights compared to civil law (political channel). They postulate that even though the British Parliament sided with private property owners against the British Crown, this is no evidence that common law systems favor private investor rights to a higher degree than civil law systems (Rubin, 1982). Second, they question whether common law is characterized by more judicial

flexibility than the civil law (adaptability channel). Specifically they posit that precedent cases and the lack of codification might hinder the efficient legal development in common law countries (Rubin, 1982; Blume and Rubinfeld, 1982). Third, scholars question whether common law provides better incentives to select efficient outcomes than civil law. They argue that market participants with unlimited resources might be willing to litigate and re-litigate cases until the judiciary decides in their favor. The choice between legislation or litigation might then be a strategic decision regarding the greatest probability of success (Beck and Levine, 2005).

Furthermore, scholars criticize the categorization of legal origin in the four above-mentioned legal families. Specifically, legal origins have shown to have low explanatory power in the context of shareholder rights and are generally unable to fully explain variations in financial development over time (Rajan and Zingales, 2003; Armour et al., 2010). Detailed research even shows differences in the capabilities to adapt between two common law countries, the UK and the USA (Franks and Sussman, 2005). Finally, they argue that legal origin does not determine financial development by itself alone, but rather that the manner in which the legal system was installed (i.e., occupation, colonization and/or imitation) is linked to financial development (Berkowitz et al., 2003).

Adding to this, scholars only partially accept the idea that legal origin solely determines investor protection, and thus financial development. They rather argue that political forces shape the policies determining the level of investor protection, the degree of contract enforcement and the balance between investor rights and state rights (Rajan and Zingales, 2003; Pagano and Volpin, 2001, 2005). However, empirical evidence does not confirm this view. Even when controlling for different political systems, findings suggest that legal origin still explains cross-country differences in equity market development, financial intermediary development and the level of investor protection (Beck et al., 2006). Some scholars even reject the purported impact of political forces by showing that changes in the political system of Germany, France and England over the 20^{th} century did not impact the evolution of law (Pistor et al., 2003a,b). Further results also question the importance of investor protection for financial development by showing that changes in

investor protection do not impact financial development (Franks et al., 2008).

Contrary to the theory of legal origin, the endowment view postulates that differences in environmental endowments impact financial development and private property rights (Engerman and Sokoloff, 1997; Acemoglu et al., 2001, 2002; Engerman and Sokoloff, 2002; Levine, 2005). According to the endowment view, Europeans adopted different strategies of colonization leading to two different types of colonies. In "settler colonies" the colonizers settled and established institutions supporting private property rights over state rights. In "extractive colonies" Europeans aimed at extracting as much resources as possible, and thus empowered institutions rather than supported private property rights. Colonies with favorable environmental endowments were more likely to become settler colonies than inhospitable environments. Following the end of colonization, colonies maintained their existing institutions and settler colonies tended to be more democratic and protect private property rights better than extractive colonies. These results are supported by finding suggesting that endowments in terms of religion, settler mortality and tropical climate help to explain cross-country differences in financial development (Beck et al., 2006). Indeed, some religions, e.g. Islam, specifically prohibit the charging of interests. Empirical findings suggest that legal origin explains laws protecting equity while religion explains laws protecting creditors (Stulz and Williamson, 2003).

Finally, the shareholder and creditor indices by La Porta et al. (1998), also referred to as "leximetrics", are criticized in the literature and blamed to exhibit a home-bias towards the USA (Lele and Siems, 2007; Siems and Deakin, 2010). Scholars review the binary scoring methodology and the use of dichotomous and continuous variables. They suggest corrections to the composition and computation of shareholder and creditor indices together with a recoding of country specific sub-dimensions along the law in action and not the law in the books (Coffee, 1998; Braendle, 2005; Cools, 2006; Ahlering and Deakin, 2007; Lele and Siems, 2007; Armour et al., 2009; Spamann, 2010; Buchanan et al., 2014; Deakin et al., 2015). As a result, they are not able to replicate the findings proposed by La Porta et al. (1998).

These methodological flaws add to a general problem of endogeneity within the law and

finance literature, which typically bases its empirical findings on cross-sectional studies (La Porta et al., 2008). First, scholars point out potential reverse causality and argue that investor protection might also be a result from investors exerting political pressure in the context of specific financial development. Second, they raise concerns with respect to omitted variables bias especially in the context of legal origins and its channels. Consequently, few scholars have started to address the criticism by relying on the study of insolvency law reforms (e.g., Scott and Smith, 1986; Djankov et al., 2007; Araujo et al., 2012; Vig, 2013; Hackbarth et al., 2015). This approach at least relieves concerns regarding reverse causality but does not help to precisely disentangle through which channel legal origin influences financial development.

Summing up the review of the law and finance literature, it can be said that the work by La Porta et al. (1998) has led to extensive discussions among scholars over the past decades. Empirical findings have shown to be largely in line with theoretical considerations but have also been widely criticized, most importantly for their issues with endogeneity, i.e., reverse causality and omitted variables (e.g., La Porta et al., 2008; Siems and Deakin, 2010; Spamann, 2010). Consequently, this criticism calls for further research, leaving traditional studies of the cross-section aside and focusing its empirical strategies on a more detailed and causal study of the underlying law, e.g., by studying imminent effects resulting from legal reforms, specifically insolvency law reforms.

In the following, I focus on the role of insolvency law in the context of the firm and its stakeholders. Insolvency law regulates the rights of the firm and its stakeholders in the case of corporate failure, and thus defines each stakeholder's expectations. This study is particularly relevant for firms and their stakeholders when making decisions, but more generally also for the overall economic system since insolvency remains an important issue to governments and policymakers. Indeed, firm insolvencies are nowadays still a relevant topic even in developed economies as in, e.g., Germany which saw 21,518 cases of corporate default with a cumulative claim volume of €27.4bn in 2016 (Statistisches Bundesamt, 2017).

2.5. Insolvency law

The design of an efficient and effective insolvency law remains a major concern for policymakers around the world. This is because the insolvency regime plays a fundamental role in shaping and revitalizing a country's financial system (Schumpeter, 1934; Hotchkiss et al., 2008). In consequence, law-making processes have gradually incorporated results and implications from the ongoing discussion between law and finance scholars. The seminal articles by La Porta et al. (1997, 1999, 2000b, 2002a,b) found their way into the EU Commission's line of argumentation with respect to their reform directive on shareholder rights (European Commission, 2006). Additionally, a vast part of the developed methodology and indices (Djankov et al., 2003b, 2007, 2008a,b) became the basis of the World Banks' Doing Business Project aiming at promoting financial and legal development (World Bank, 2017).

To construct these indices, scholars rely on the assessment, interpretation and codification of national law, specifically company and insolvency law in the context of corporate finance (La Porta et al., 2008). Given the terminal character of corporate failure, a detailed investigation of insolvency law provides important insights regarding investor protection and more specifically the balance of power between the firm and its stakeholders.

2.5.1. Theory and goals

Scholars argue that the firm's stakeholders compete over its assets in the case of insolvency (Aghion et al., 1994). In theory, stakeholders should be able to agree upon the repartition of an insolvent firm's assets via specific contracts. In reality, however, market imperfections and interest conflicts between stakeholders lead to economic inefficiencies and make it difficult for firms to orderly exit the market in the case of failure (Berkovitch and Israel, 1999). Consequently, insolvency law has to deal with these market imperfections and inefficiencies.

First, asymmetric and incomplete information between the debtor and its creditors may lead to bargaining frictions. In contrast to creditors, managers may anticipate financial difficulties and decide not to disclose them (Stiglitz and Weiss, 1981; Berkovitch and

Israel, 1998, 1999). Second, bargaining frictions may induce additional transaction costs like foregone investments into value-creating projects, and thus negatively affect firm value and process efficiency (White, 1989; Gertner and Scharfstein, 1991; Berkovitch and Israel, 1999; Hart, 2000; Bebchuk, 2002). Third, private contracts are closed at a specific moment in time based on the outcome of the bargaining process. Consequently they may only account for potential future developments to a certain extent (Aghion et al., 1994; Hart, 2001; Ayotte and Yun, 2009). The debtor will always have the possibility to acquire further assets and engage into further liabilities (Bolton and Scharfstein, 1996; Hart and Moore, 1998), while creditors may only estimate the debtor's probability of default due to adverse selection and moral hazard (Stiglitz and Weiss, 1981; Fudenberg and Tirole, 1990; Hart and Moore, 1998; Hart, 2001). Fourth, once insolvency is imminent, creditors are incentivized to engage in a creditor run to satisfy their individual claims even though collectively they would be better off if the firm continued as a going concern (White, 1989; Fudenberg and Tirole, 1990; Gertner and Scharfstein, 1991; Aghion et al., 1994; White, 2007). Alternatively, creditors might opt for a hold-out strategy in the expectation of a better outcome. Fifth and finally, overall or industry-specific shocks may lead to fire sales and force otherwise viable firms into financial distress.

In consequence, the two main goals of insolvency law are to minimize the above-mentioned ex-ante and ex-post inefficiencies (Cornelli and Felli, 1997). Here, ex-ante efficiency refers to incentivizing the firm and its stakeholders towards a certain behavior. Ex-post efficiency aims at achieving a maximum value for the firm's stakeholders once the firm is considered insolvent (Hart, 1995, 2000).

Ex-ante efficiency can be achieved by incentivizing creditors to efficiently monitor debtors and by preventing firms from engaging into risky projects or concealing the firm's true financial state (Hart, 1995; Cornelli and Felli, 1997; Hart, 2000). Insolvency law should aim at motivating the firm and its stakeholders to declare insolvency at the right time in order to prevent the debtor from defaulting strategically. This is consistent with the view that ex-ante inefficiencies can be mitigated by reducing insolvency related agency costs of ownership and control (Jensen and Meckling, 1976). Concrete mechanisms to incre-

ase ex-ante efficiency are the adequate penalization of managerial misbehavior (Jensen, 1986; Fudenberg and Tirole, 1990; Povel, 1999) or the incentivizing mechanism of debt (Grossman and Hart, 1982; Claessens and Laeven, 2003).

In contrast, ex-post efficiency requires the insolvency law to generate the highest value for the firm's stakeholders and the overall economic system by maximizing the firm's value, minimizing insolvency costs, and efficiently reallocating the remaining assets (Hart, 1995, 2000; Eger, 2001). An ex-post efficient insolvency regime distinguishes between firms with and without positive business prospects. By offering the possibility to liquidate non-viable firms and to restructure viable firms, it promotes the reallocation of resources to the latter and towards new businesses (White, 1994; Kaiser, 1996; Eger, 2001; White, 2007). Providing adequate tools for restructuring might also spur firm investment because returns are not used to service outstanding debt.

Addressing ex-ante and ex-post inefficiency requires the insolvency regime to specify the rights and the level of protection it assigns to the firm and each of its stakeholders (Hotchkiss et al., 2008). The resulting balance of power between the firm and its stakeholders determines the degree of satisfaction that these stakeholders can expect in the case of corporate failure (White, 2007). In a general equilibrium, this balance of power will be reflected in each stakeholders' expectations, their behavior, and thus their respective required risk premium (Stiglitz and Weiss, 1981; Fudenberg and Tirole, 1990; Berkovitch et al., 1997; Hart, 2001; Bebchuk, 2002).

With respect to external finance, this implies that in order to ensure efficient lending, interest rates should reflect the risks that creditors face under insolvency (Eger, 2001). Without regulating the balance of power between the firm and its creditors, the latter would be inclined to finance riskless firms or to charge high interest rates. Consequently, the overall costs of borrowing would increase, while credit access would be constrained for less wealthy firms (Stiglitz and Weiss, 1981).

The balance of power between the firm and its stakeholders is regulated in the insolvency law (White, 2007). Usually, it follows the absolute priority rule which postulates that creditors are to be satisfied first and that higher ranking creditors are to be served before

lower ranking ones (Franks and Torous, 1989; White, 1989). Therefore, remaining stakeholders are left with a residual claim, which might only be satisfied when the face value of the outstanding debt is lower than the remaining firm value. Preservation of the absolute priority rule is considered crucial for efficient external financing as it counters potential ex-post dilution of claims (Franks et al., 1996; Hart, 2000; Bebchuk, 2002). Deviations from the absolute priority rule can take the form of, e.g., debt composition agreements or debt-to-equity swaps. These deviations imply that some of the firm's value is purposely taken from creditors and indirectly attributed to other stakeholders through the debtor. Therefore, creditors have to rely on formal legal mechanisms to enforce their rights in the event of insolvency (Haselmann et al., 2010).

However, the design of a well-balanced insolvency code is considered complicated due to conflicting mechanisms of ex-ante and ex-post efficiency. Indeed, an insolvency regime that provides ex-ante efficiency should be more creditor-friendly to discipline the management and secure debt repayment. Under stronger creditor rights, managers may be incentivized to reduce corporate risk taking and to exert an adequate level of effort, especially when facing the risk of dismissal (Rajan and Zingales, 1995). In contrast, ex-post efficient insolvency regimes should try to avoid creditor-friendly provisions in order to prevent excessive liquidations and delays when filing for insolvency. Instead they should facilitate efficient restructuring and new business creation (Armour et al., 2015).

This implies that the insolvency regime will never be able to fully satisfy the interests of the firm and each involved stakeholder, and thus needs to bring the resulting trade-off to an optimum. The two ends of this spectrum are the following: a fully debtor-friendly code, in which the debtor retains full control of the firm despite defaulting, and a fully creditor-friendly code, in which all ownership rights are transferred to the creditors (Acharya and Subramanian, 2009).

At first sight, debtor-friendly insolvency regimes may seem to worsen outcomes for creditors as they shift the focus from liquidation to restructuring. However, debtor-friendly provisions may help to rescue firms that are worth more as going-concerns than after piecemeal liquidation (White, 1994). This would benefit creditor satisfaction and lead to less

inefficient liquidations (Shleifer and Vishny, 1992). Consequently, providing adequate and efficient provisions to identify and restructure viable firms in a debtor-friendly insolvency regime might lead to a higher return to all involved stakeholders (White, 2007).

However, restructuring-friendly and therefore debtor-friendly insolvency regimes bear the risk that non-viable firms may strategically file for restructuring to avoid liquidation, which would lead to longer proceedings and lower remaining firm value. In contrast, liquidation-friendly, and therefore creditor-friendly, insolvency regimes may lead to inefficient outcomes by liquidating otherwise viable firms (Ayotte and Yun, 2009). However, creditor-friendly regimes may be helpful in countries where the judicial lacks enforcement and efficiency because they reduce incentives for creditors to enforce their claims privately. Indeed, monitoring and punishing mechanisms like, e.g., information-sharing institutions, might help to reduce the risks involved for creditors (Djankov et al., 2007).

In the long-run, the ultimate goal of the insolvency regime is to act as a screening mechanism, separating financially distressed but economically viable firms from inefficient, non-viable ones (White, 1989; Gertner and Scharfstein, 1991). This could be achieved by facilitating the rehabilitation of viable firms, e.g., via restructuring or the sale of the business as a going-concern, but also by the liquidation of unviable businesses (White, 1989). Ineffective insolvency laws, on the contrary, may force otherwise viable firms into liquidation and keep non-viable firms in operation, thereby destroying value in the overall economic system (Armour et al., 2015). This view implies that it is not the insolvency regime's goal to rescue as many firms as possible, but rather to ensure a healthy balance between market entry and exit. Discouraging inefficient, non-competitive firms from exiting a market, may prevent entrepreneurship and the creation of more efficient and innovative firms from entering this market.

To conclude, insolvency regimes should be easily easily accessible to firms in financial distress and facilitate efficient and timely firm exit. They should especially promote restructuring of viable firms and liquidation of non-viable firms in a way that maximizes proceeds for all involved stakeholders. Also, they should balance the interest of the firm and its creditors to ensure future risk-taking by creditors and debtors. Finally, they should

be backed by an efficient judicial system composed of judges with relevant expertise that are willing to enforce private contracts (Claessens and Klapper, 2005; Ayotte and Yun, 2009; Gennaioli and Rossi, 2010; Gennaioli, 2013)

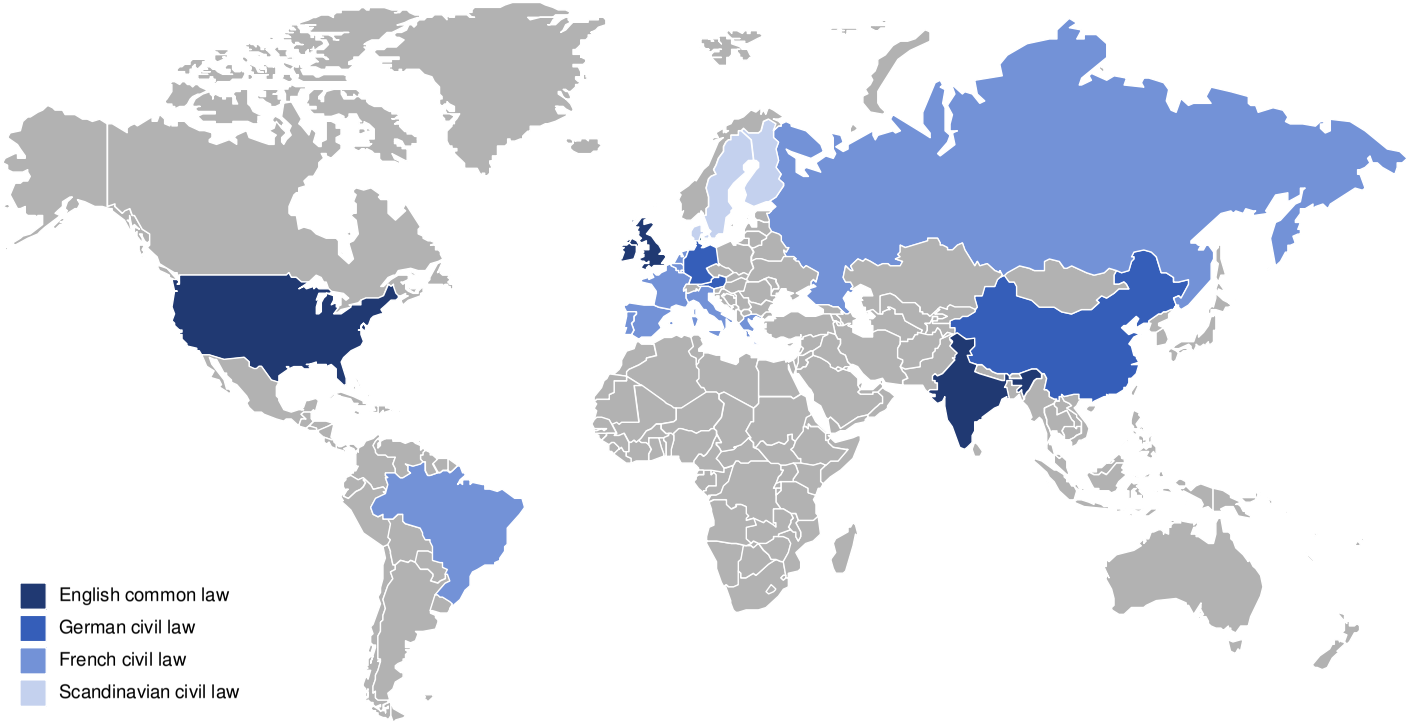
2.5.2. Key proceedings and features

According to the theory of insolvency law, achieving ex-ante and ex-post efficiency requires addressing the balance of power between debtors and creditors. To achieve desired outcomes with respect to this balance of power, insolvency regimes make use of different types of proceedings and features. In the following, I provide an overview of typical proceedings and features found in insolvency law. I purposely focus on the balance of power between debtors and creditors as it is of central interest from a law and finance perspective. Furthermore, I disregard legal provisions that deal with personal insolvency or that specifically target the insolvency of firms from within the financial sector. I complement this overview with results from the analysis of current insolvency law as of year-end 2015 in a sample of 20 selected countries around the globe.

The sample consists of the EU15 countries[5], the BRIC countries[6] and the USA. An overview of the countries in the sample including their legal origin can be found in Figure 2.1. A brief summary of each country's insolvency law as of the year 2015[7] can be found in Appendix A.1 to Appendix A.20. There are four countries with a legal origin in English common law (India, Ireland, UK, USA), three countries with a legal origin in German civil law (Austria, Germany, China), ten countries with a legal origin in French civil law (Belgium, France, Greece, Italy Luxembourg, Netherlands, Portugal, Spain, Brazil, Russia) and three countries with a legal origin in Scandinavian civil law (Denmark, Finland, Sweden) in the sample.

[5] Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom (UK).
[6] Brazil, Russia, India, China.
[7] Since India reformed its insolvency law completely with the beginning of 2016, I exceptionally provide information on Indian insolvency law as of 2016.

Figure 2.1.: Countries in the sample.



The figure highlights the 20 countries included in the sample: the EU15 countries with Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom (UK); the BRIC countries with Brazil, China, India, Russia; and the United States of America (USA). Additionally, the figure provides information on each country's legal origin according to the four legal families: English Common Law, German Civil Law, French Civil Law and Scandinavian Civil Law. The sample consists of four countries with a legal origin in English common law (India, Ireland, UK, USA), three countries with a legal origin in German civil law (Austria, Germany, China), ten countries with a legal origin in French civil law (Belgium, France, Greece, Italy Luxembourg, Netherlands, Portugal, Spain, Brazil, Russia) and three countries with a legal origin in Scandinavian civil law (Denmark, Finland, Sweden). Source: Djankov et al. (2007).

In insolvency law there are typically two types of proceedings available to firms facing financial distress. First, preventive restructuring proceedings provide for out-of-court restructuring proceedings under limited judicial supervision before the event of corporate default. Second, formal insolvency proceedings under corporate default, which offer structured and court-supervised proceedings, aiming at restructuring or liquidating the firm.

As the name indicates, preventive proceedings usually do not require the initiation of formal insolvency proceedings with the insolvency court. In general, they are associated with higher flexibility and lower costs compared to fully court-supervised proceedings. This is because, the rigidity of the judicial system might reduce firm value, and thus hinder quick and efficient firm restructuring or liquidation. Under restrictive insolvency regimes firms might even display "forum-shopping" behaviors by strategically relocating to countries with more favorable insolvency regimes (Lo Pucki, 2005; European Commission, 2016).

Table 2.1 provides an overview of the types of proceedings available in insolvency law across the 20 countries in the sample. All countries have insolvency regimes that provide the option of liquidation and restructuring during formal insolvency proceedings. However, preventive out-of-court restructuring proceedings are only available in ten out of the 20 countries. This suggests that the insolvency regimes in the sample emphasize formal insolvency proceedings over preventive proceedings, all while considering liquidation and restructuring proceedings to be equally important.

In general, insolvency law allows for three reasons to initiate preventive restructuring proceedings and formal insolvency proceedings. First, firms that are not able to make any due payments are considered illiquid and usually obligated to file for insolvency. Second, firms that are able to foresee that they will not be able to meet due payments in the near future can often file for insolvency under the reason of imminent illiquidity. Finally, firms with more liabilities than assets and a lack of positive business prospects may file for insolvency due to over-indebtedness.

Formal insolvency proceedings are typically to be initiated by the debtor by filing a request with the local insolvency court. Additionally, the insolvency law may also allow creditors

Table 2.1.: Types of proceedings before and during insolvency.

(1)	(2)	(3)	(4)
Country	Preventive proceedings	Restructuring proceedings	Liquidation proceedings
Austria	No	Yes	Yes
Belgium	Yes	Yes	Yes
Denmark	No	Yes	Yes
Finland	No	Yes	Yes
France	Yes	Yes	Yes
Germany	No	Yes	Yes
Greece	Yes	Yes	Yes
Ireland	No	Yes	Yes
Italy	Yes	Yes	Yes
Luxembourg	No	Yes	Yes
Netherlands	Yes	Yes	Yes
Portugal	Yes	Yes	Yes
Spain	Yes	Yes	Yes
Sweden	Yes	Yes	Yes
UK	Yes	Yes	Yes
Brazil	Yes	Yes	Yes
China	No	Yes	Yes
India	No	Yes	Yes
Russia	No	Yes	Yes
USA	No	Yes	Yes

Notes: This table provides an overview of the proceedings available before and during insolvency in each country of the sample. Preventive restructuring proceedings provide for out-of-court restructuring proceedings under limited judicial supervision. Restructuring proceedings and liquidation proceedings provide structured, restrictive and court-supervised proceedings aiming at restructuring or liquidating the firm respectively. This table is based on each country's insolvency law as of 2015. A brief summary of each country's insolvency law can be found in Appendix A.1 to Appendix A.20. All information was validated with World Bank (2015).

and other stakeholders of the firm to file for formal insolvency proceedings. In the latter case, the insolvency court usually requires adequate proof before approving the request and then only allows for the opening of liquidation proceedings. In any case, the insolvency court is in charge to review the filing and decides whether to open proceedings. Allowing for both the debtor and its creditors to file for insolvency might increase the overall efficiency of the insolvency regime. Restricting creditors from filing for restructuring proceedings might reduce the number of successful restructurings, and thus increase the probability that viable firms are liquidated.

Table 2.2 provides an overview of the provisions for the opening of formal insolvency proceedings across the 20 countries in the sample. Columns (2) to (4) provide information on the available grounds to open formal insolvency proceedings. It is not surprising that illiquidity constitutes a ground to open formal insolvency proceedings in each country. Over-indebtedness is the second most available ground being eligible in seven out of 20 countries, while imminent insolvency is only available in five out of 20 countries. Columns (5) to (8) provide information on whether the debtor and/or its creditors are allowed to file for restructuring and/or liquidation proceedings. Again, it seems logical that debtors are allowed to file for restructuring and liquidation proceedings in each country. Creditors are also able to file for liquidation proceedings in all countries, however, they are only allowed to file for restructuring proceedings in 13 out of 20 countries. All in all, this suggests that insolvency regimes in the sample consider insolvency proceedings as a mechanism to tackle financial distress, but preferably only once illiquidity has arisen. Over-indebtedness seems to be considered less critical as long as the debtor manages to serve its outstanding debt. This is consistent with the already observed low availability of preventive restructuring proceedings. With respect to choosing the adequate type of proceeding, it seems that the insolvency regimes rely on the debtor's rather than the creditors' judgment.

In the case that restructuring proceedings have been opened they typically involve the preparation of a restructuring plan introducing financial or operational change to the firm in financial distress. This usually results in partial sales of the debtor's business or debt composition agreements regulating potential payment deferrals, debt write-offs, interest

Table 2.2.: Opening of formal insolvency proceedings.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Grounds to open proceedings			Debtors allowed to file for		Creditors allowed to file for	
Country	illiquidity	imminent illiquidity	over-indebtedness	restructuring	liquidation	restructuring	liquidation
Austria	Yes	No	Yes	Yes	Yes	No	Yes
Belgium	Yes	Yes	No	Yes	Yes	No	Yes
Denmark	Yes	No	No	Yes	Yes	Yes	Yes
Finland	Yes	No	Yes	Yes	Yes	Yes	Yes
France	Yes	No	No	Yes	Yes	Yes	Yes
Germany	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Greece	Yes	No	No	Yes	Yes	No	Yes
Ireland	Yes	No	Yes	Yes	Yes	Yes	Yes
Italy	Yes	No	No	Yes	Yes	Yes	Yes
Luxembourg	Yes	No	No	Yes	Yes	No	Yes
Netherlands	Yes	Yes	No	Yes	Yes	No	Yes
Portugal	Yes	No	Yes	Yes	Yes	Yes	Yes
Spain	Yes	Yes	No	Yes	Yes	Yes	Yes
Sweden	Yes	No	No	Yes	Yes	Yes	Yes
UK	Yes	No	Yes	Yes	Yes	Yes	Yes
Brazil	Yes	No	Yes	Yes	Yes	No	Yes
China	Yes	Yes	No	Yes	Yes	Yes	Yes
India	Yes	No	No	Yes	Yes	Yes	Yes
Russia	Yes	No	No	Yes	Yes	No	Yes
USA	Yes	No	No	Yes	Yes	Yes	Yes

Notes: This table provides an overview of the provisions for the opening of formal insolvency proceedings in each country of the sample. Columns (2) to (4) provide the available grounds to file for formal insolvency proceedings. Firms that are not able to make any due payments are considered illiquid. Firms that are able to foresee illiquidity in the near future are considered imminently illiquid. Firms with more liabilities than assets and a lack of positive business prospects are considered over-indebted. Columns (5) to (8) provide information on whether debtors and/or creditors are allowed to file for liquidation and/or restructuring proceedings. This table is based on each country's insolvency law as of 2015. A brief summary of each country's insolvency law can be found in Appendix A.1 to Appendix A.20. All information was validated with World Bank (2015).

rate reductions or the provision of new debt. This process is often orchestrated by a court-appointed trustee whose task it is to support the elaboration of the restructuring plan. However, he may also have to take-over the debtor's operations from the incumbent management. In any case, the restructuring plan is subject to the approval by the firm's creditors and ultimately the insolvency court. Creditors with comparable legal claims may be assigned to specific creditor classes, and thus the restructuring plan may require approval by the majority in each class. Finally, restructuring proceedings may also be run as debtor-in-possession proceedings under which the debtor retains full control over the firm and no trustee is appointed.

In contrast, liquidation proceedings aim at liquidating the firm's assets and realizing the insolvent firm's remaining value. This process is typically orchestrated by a court-appointed liquidator whose tasks are to collect the claims against the insolvent firm, to liquidate the assets and to satisfy the firm's stakeholders according to a pre-defined order of priority. Failed restructuring proceedings will usually automatically trigger subsequent liquidation proceedings.

Both of these proceedings show a variety of features and mechanisms. Policymakers may or may not rely on these features and mechanisms when designing insolvency law in order to achieve ex-ante and ex-post efficiency and to address the balance between creditors and debtors (Davydenko and Franks, 2008; Franks et al., 2008). Specifically, scholars identified four key features of formal insolvency proceedings used to regulate the balance of power between debtors and creditors (e.g., La Porta et al., 1998, 2008; Djankov et al., 2007, 2008b).

First, insolvency proceedings may be subject to different levels of court intervention. Court intervention can be measured by the level procedural involvement of the insolvency court and the possibility for incumbent management to stay during restructuring proceedings. High procedural involvement of the insolvency court increases coordination efficiency and ensures that all parties are adequately involved. However, court involvement also induces costs and should therefore be limited to cases where it is absolutely necessary (Franks and Sussman, 2005). In contrast, by removing the incumbent management and replacing it

with a court-appointed administrator, the insolvency regime might be able to incentivize creditors, especially secured creditors, to favor restructuring over liquidation (Hotchkiss, 1995; Kaiser, 1996). In contrast, replacing the incumbent management might lead to the loss of firm-specific skills and expertise, and incentivize managers to conceal the firm's true financial state (Hart, 1995; Berkovitch et al., 1997).

Second, upon request or at its own discretion the insolvency court may order a stay on creditor enforcement during restructuring proceedings, effectively protecting the debtor from foreclosure by its creditors (Baird and Jackson, 1984; La Porta et al., 1998; Djankov et al., 2008a). This stay on creditor enforcement might even be automatic upon the filing and/or opening of restructuring proceedings. In doing so, the insolvency regime may ensure the continuity of the debtor's operations, prevent a creditors' run on the firm's assets and provide the debtor with sufficient time to work out a restructuring plan (Claessens and Klapper, 2005). However, a stay on creditor enforcement should be limited in time in order to avoid adverse effects from a lower probability of creditor satisfaction, e.g., premature liquidations of otherwise viable firms (Wruck, 1990; Armour and Cumming, 2008).

Third, the insolvency law might allow to cram down the approval of a restructuring plan on dissenting creditors. Therefore, restructuring proceedings might be accelerated and the overall remaining value of the insolvent firm maximized (Brown, 1989). However, dissenting creditors should be protected against excessive and unfair cram down. This typically means that dissenting creditors should not be worse off with the restructuring plan than under liquidation, that they receive the same treatment as their peers within the same creditor class and that the restructuring plan requires approval by a significant majority of creditors.

Fourth, the absolute priority rule regulates the order of creditor satisfaction in the case of liquidation and typically requires two main considerations (Aghion et al., 1994). First, secured creditors should be able to secure their claims first. Otherwise, secured creditors would be inclined to favor liquidation over restructuring in order to satisfy their claims (Brouwer, 2006). Second, secured and unsecured creditors should typically be placed

above equity holders or shareholders (Eger, 2001). Sticking to these ex-ante priority rules usually makes insolvency proceedings more predictable and efficient. However, ex-post deviations may be necessary to increase the remaining firm value for the firm's stakeholders. Especially new financing might be necessary in order to ensure successful restructuring and should therefore be granted priority ahead of unsecured creditors (Baird and Jackson, 1988). Unsecured creditors might, however, misuse this feature in order to move up in the priority ranking. In general, new financing should only have priority over secured creditors if they give their explicit consent.

Table 2.3 provides an overview of the four key features for the 20 countries in the sample. Columns (2) and (3) summarize the degree of court intervention during formal insolvency proceedings in each country of the sample.[8] In general, court involvement during insolvency proceedings remains largely limited or even passive in 14 out of 20 countries. With some exceptions, active court involvement can mainly be observed in countries from the northern regions of Europe. All 20 countries in the sample provide the possibility of incumbent management to stay. However, provisions typically include an option for the court to remove the incumbent management if deemed necessary. Columns (4) and (5) present information regarding the stay on enforcement in each country of the sample. With exception of Austria every country provides the possibility to order a stay on creditor enforcement. However, this stay on creditor enforcement is automatic only in 15 out of 20 countries. Columns (6) and (7) provide an overview regarding cram down provisions in each country of the sample. With exception of Austria all countries provide for the possibility to cram down a restructuring plan on dissenting creditors. However, only seven out of 20 countries implemented explicit legal provisions that ensure that dissenting creditors are not worse-off than in the case of liquidation. Finally, columns (8) and (9) show provisions regarding priority rules in each country of the sample. Interestingly, secured creditors are guaranteed to be paid first in only 12 out of 20 countries. New finance, on the other hand, receives priority over unsecured creditors in 17 out of 20 countries.

[8] Categories are based on Carcea et al. (2015): (i) "active" implies full court involvement over proceedings including in-court negotiations and voting; (ii) "limited" implies limited court involvement over proceedings with out-of-court negotiations and voting; (iii) "passive" implies restricted court involvement to the confirmation of out-of-court voting outcomes.

Table 2.3.: Key features of formal insolvency proceedings.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Court intervention		Stay on enforcement		Cram down		Priority rules	
Country	Involvement by insolvency court	Stay of incumbent management	Stay on creditor enforcement	Automatic stay on enforcement	Cram down of dissenting creditors	Dissenting creditors with guarantee	Secured creditors paid first	New finance priority over unsecured
Austria	Passive	Yes	No	No	No	No	Yes	Yes
Belgium	Active	Yes	Yes	Yes	Yes	No	Yes	Yes
Denmark	Active	Yes	Yes	Yes	Yes	No	Yes	Yes
Finland	Active	Yes	Yes	No	Yes	Yes	Yes	Yes
France	Limited	Yes	Yes	Yes	Yes	No	No	Yes
Germany	Limited	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Greece	Limited	Yes	Yes	No	Yes	Yes	No	Yes
Ireland	Active	Yes	Yes	Yes	Yes	No	Yes	Yes
Italy	Passive	Yes	Yes	No	Yes	Yes	No	Yes
Luxembourg	Limited	Yes	Yes	Yes	Yes	No	No	No
Netherlands	Active	Yes	Yes	Yes	Yes	No	Yes	Yes
Portugal	Passive	Yes	Yes	Yes	Yes	Yes	No	Yes
Spain	Passive	Yes	Yes	Yes	Yes	No	Yes	Yes
Sweden	Limited	Yes	Yes	Yes	Yes	No	No	Yes
UK	Passive	Yes	Yes	No	Yes	No	Yes	Yes
Brazil	Limited	Yes	Yes	Yes	Yes	No	No	Yes
China	Passive	Yes	Yes	Yes	Yes	Yes	Yes	No
India	Limited	Yes	Yes	Yes	Yes	No	No	No
Russia	Active	Yes	Yes	Yes	Yes	No	Yes	Yes
USA	Limited	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table provides an overview of the key features of formal insolvency proceedings in each country of the sample. Columns (2) and (3) summarize the degree of court intervention during formal insolvency proceedings. Categories in column (2) are based on Carcea et al. (2015): (i) "active" implies full court involvement over proceedings including in-court negotiations and voting; (ii) "limited" implies limited court involvement over proceedings with out-of-court negotiations and voting; (iii) "passive" implies restricted court involvement to the approval of out-of-court voting outcomes. Columns (4) and (5) present information regarding the availability of a stay on enforcement. Columns (6) and (7) provide an overview regarding cram down provisions. Columns (8) and (9) show provisions regarding priority rules. This table is based on each country's insolvency law as of 2015. A brief summary of each country's insolvency law can be found in Appendix A.1 to Appendix A.20. All information was validated with World Bank (2015).

All in all, this suggests that insolvency regimes in the sample (i) differ in the importance they attach to court involvement; (ii) value the firm-specific skills and expertise of incumbent management; (iii) emphasize the additional protection of debtors provided by a stay on creditor enforcement; (iv) aim at facilitating and ensuring efficient restructuring by providing an automatic stay on creditor enforcement; (v) value the outcome to the overall economy higher than the satisfaction of individual creditors; (vi) favor restructuring through the provision of new debt over individual creditors' satisfaction.

2.5.3. Optimal design and reforms

The solution to the question of how to set up an optimal insolvency design is ambiguous. As previously described, insolvency regimes around the world have always differed and still differ in their insolvency law design. Additionally, many insolvency law regimes are still characterized by lengthy and costly insolvency procedures. Therefore, scholars (e.g., La Porta et al., 1998; Djankov et al., 2007) and institutions (e.g., United Nations Commission on International Trade Law, 2005; World Bank, 2017) around the world have addressed the question of how an optimal insolvency law would have to look like.

The World Bank initiated the Doing Business Project which aims at measuring the strength and efficiency of insolvency law in a set of 190 countries worldwide (World Bank, 2017). Therefore, they measure the strength of the insolvency regime, the recovery rate, the recovery time and the insolvency costs encountered during formal insolvency proceedings. High values of the insolvency strength measure and/or recovery rate together with low values of the recovery time and/or insolvency costs indicate that the insolvency regime is more efficient at rehabilitating viable firms and liquidating non-viable ones. Based on on this information and international rankings countries may assess their specific need to reform insolvency law.

Table 2.4 provides an overview of the respective metrics as of 2017 for the 20 countries in the sample together with mean values for the total of 190 countries in the original World Bank database (World Bank, 2017). Sample means indicate that the 20 countries in the sample have on average stronger, more efficient and less costly insolvency regimes than the

total set of 190 countries. However, India and Luxembourg underperform the rest of the sample across all dimensions. Interestingly, 12 out of the 20 countries are ranked among the TOP 20 countries in resolving insolvency. This suggests that the sample mainly consists of countries with rather strong and efficient insolvency regimes. These observations are confirmed by results from t-tests for the null hypothesis of equal means between the sample and the total set of 190 countries from the original World Bank database.

However, it is important to note that, according to the above figures, insolvency laws around the world and even in well-developed economies are far from functioning perfectly (Djankov et al., 2008a). This is why results and implications from comparable studies have found their way into actual law-making over the past years. Building on the World Bank's figures, the latest European Commission's proposal for a new directive on insolvency law aims at installing a minimum legal framework in each member state. Its main goals are to allow for effective restructurings and to facilitate formal insolvency procedures with reasonable length and costs (European Commission, 2014, 2016). By doing so, capital flows within the European Union (EU) are facilitated without creating a single common insolvency regime. It is important to note that the proposal does not affect core aspects of insolvency proceedings like the opening grounds for insolvency or country-specific priority rules. This proposal adds to the already existing European Insolvency Regulation which provides rules on how to handle cross-border insolvencies with conflicting judicial provisions within the EU (European Council, 2000; European Parliament and European Council, 2015).

The content of the European Commission's proposal reveals the features that the European Commission considers crucial for the optimal design of insolvency law: (i) provide for pre-insolvency restructuring proceedings; (ii) reduce court involvement to adoption and enforcement tasks; (iii) allow for debtor-in-possession proceedings without removal of the incumbent management; (iv) introduce an automatic stay on creditor enforcement; (v) allow a restructuring plan to be approved by a majority of impaired creditor classes; (vi) provide the possibility to cram down dissenting creditors; (vii) eliminate the possibility of blocking by specific stakeholders; (viii) allow for the possibility to obtain new financing

Table 2.4.: Strength and efficiency of insolvency law design.

(1)	(2)	(3)	(4)	(5)	(6)
Country	Insolvency strength (0–16)	Recovery rate (%)	Recovery time (years)	Insolvency costs (%)	Resolving insolvency (rank)
Austria	11.0	82.8	1.1	10.0	20
Belgium	11.5	89.9	0.9	3.5	10
Denmark	12.0	88.0	1.0	4.0	8
Finland	14.5	90.3	0.9	3.5	1
France	11.0	78.5	1.9	9.0	24
Germany	15.0	84.4	1.2	8.0	3
Greece	12.0	35.6	3.5	9.0	52
Ireland	10.5	87.7	0.4	9.0	17
Italy	13.5	63.9	1.8	22.0	25
Luxembourg	7.0	43.7	2.0	14.5	82
Netherlands	11.5	89.3	1.1	3.5	11
Portugal	14.5	74.2	2.0	9.0	7
Spain	12.0	78.3	1.5	11.0	18
Sweden	12.0	77.9	2.0	9.0	19
UK	11.0	88.6	1.0	6.0	13
EU15 mean	**11.9**	**76.9**	**1.5**	**8.7**	**21**
Brazil	13.0	15.8	4.0	12.0	67
China	11.5	36.9	1.7	22.0	53
India	6.0	26.0	4.3	9.0	136
Russia	11.5	38.6	2.0	9.0	51
BRIC mean	**10.5**	**29.3**	**3.0**	**13.0**	**77**
USA	15.0	78.6	1.5	10.0	5
Sample mean	**11.8**	**67.5**	**1.8**	**9.7**	**31**
t-test vs. total	*6.8*	*5.5*	*-3.1*	*-4.7*	*-7.6*
Total mean	**7.8**	**36.2**	**2.6**	**16.1**	**94**

Notes: This table provides an overview of the strength and efficiency of insolvency law design in each country of the sample. Column (2) presents the insolvency strength, an indicator variable based on the sum of four subindices: (i) commencement of proceedings; (ii) management of debtor's assets; (iii) specifications of restructuring proceedings; (iv) creditor participation. Column (3) and (4) summarize the expected recovery rate and recovery time. The recovery rate measures the expected recovery by secured creditors in judicial restructuring or liquidation proceedings while the expected recovery time represents the corresponding time for creditors to recover their credit. Column (5) provides information on insolvency costs measured as a percentage of the value of the debtor's assets. Column (6) ranks the countries according to their relative positions in terms of insolvency strength and recovery rate. Additionally, I report results from t-tests for the null hypothesis of equal means between the sample and the total World Bank database. I explicitly choose to show the latest available data because the World Bank Doing Business Report 2015 does not provide for a country ranking of resolving insolvency (World Bank, 2015). A comparison between the two reports shows that data remains largely identical. Source: World Bank (2017).

with adequate priority. This is consistent with the view that efficient restructuring procedures are important because they lead to higher recovery rates and do not necessarily take much more time than liquidation (Bris et al., 2006).

Besides the World Bank and European Commission, optimal design of insolvency laws has also been a subject of interest to the United Nations' Commission on International Trade (UNCITRAL), which provides a legislative guide with extensive recommendations for an optimal design of insolvency law (United Nations Commission on International Trade Law, 2005). Specifically, they propose that insolvency regimes should: (i) provide for a clear trigger to initiate formal insolvency proceedings; (ii) encourage timely filing for insolvency; (iii) maximize firm value by providing both liquidation and restructuring proceedings; (iv) facilitate quick and efficient liquidation of non-viable firms; (v) support restructuring of viable firms; (vi) allow for cram down of dissenting creditors while securing their fair treatment; (vii) establish clear and predictable rules discouraging strategic and fraudulent behavior by the firm or its stakeholders; (viii) allow for out-of-court settlements; (ix) provide guidelines for the resolution of cross-border insolvencies. It is striking that these recommendations are to a large extent similar to the ones provided by the European Commission, pointing at a similar understanding of scholars and institutions regarding the optimal design of insolvency law.

UNCITRAL's proposals have found their way into actual insolvency law-making providing evidence for a strong interest by policymakers in the design of optimal insolvency law. In Greece, for example, the 2011 insolvency law reform specifically aimed at aligning Greek insolvency law with the above-mentioned proposition by the UNCITRAL. However, a proposed one-size-fits-all design might not be suitable for all countries. Therefore, it is up to each country's policymakers to decide whether they consider the above guidelines to be adequate. Policymakers may deliberately opt to alter the balance of power between debtors and creditors in a specific direction according to their understanding and goals. By reforming a country's insolvency law, policymakers may specifically desire to trigger corresponding changes in creditors' and/or debtors' behavior (Stiglitz and Weiss, 1981; Fudenberg and Tirole, 1990; Berkovitch et al., 1997; Hart, 2001; Bebchuk, 2002).

To better understand the past development of insolvency law, I research insolvency law reforms enacted between 1985 and 2015 for the 20 countries in the sample. The sample generation process is summarized in Panel A of Table 2.5 and described in detail in the following. Together with research assistants I divide the sample into six country-clusters and then successively research national insolvency laws and corresponding public governmental resources for information on insolvency law reforms. For each reform I collect information on its (i) name and number; (ii) date of enactment and date of effect; (iii) main purpose; (iv) main changes to the former insolvency law; (v) relevance for the country's insolvency law development; (vi) impact on the balance of power between debtors and creditors. For reasons of robustness and consistency I validate the gathered information in a two-step process. First, I ensure that each country cluster is researched by at least two research assistants independently from one another. The respective results are then compared and consolidated by myself. Second, where necessary, I require information to be cross-checked with insolvency practitioners, insolvency guides provided by leading international law firms and newspaper articles.

Insolvency law reforms that are considered relevant for the country's insolvency law development are reforms that altered the insolvency law in a significant way, i.e., drastically impacted debtor and/or creditor rights. For example, reforms that encompass minor adjustments in the insolvency law due to changes in other law texts or reforms that only aim at increasing procedural efficiency without impacting debtor or creditor rights are considered non-relevant and excluded. Panel B of Table 2.5 presents three examples of reforms that were not considered of significant relevance to the national insolvency law. Each reform is assessed with respect to its impact on the balance of power between debtors and creditors. In most cases, the impact on the balance of power is clear, e.g., because the reform explicitly strengthens secured creditors' rights. In few cases, the distinction between a debtor-friendly or a creditor-friendly reform is not straightforward because the reform implements multiple provisions favoring debtors and creditors differently. In those cases, I rely on cross-checks of the gathered information and assessments with insolvency practitioners, insolvency guides provided by leading international law firms and newspa-

Table 2.5.: Sample generation process.

Step	Description	N
Panel A: Collection and validation process of insolvency law reforms		
1	Collection of insolvency law reforms via national insolvency laws and corresponding public governmental resources together with research assistants in a total of six country clusters.	-
2	Comparison and consolidation of collected insolvency law reforms in each of the six country clusters.	-
3	Cross-check of collected data with insolvency practitioners, insolvency guides by international law firms and newspaper articles.	224
4	Elimination of non-relevant insolvency law reforms that do not alter the insolvency law in a significant way.	42
5	Cross-check of collected data with insolvency practitioners, insolvency guides by international law firms and newspaper articles.	42
Panel B: Examples of non-relevant insolvency law reforms		
-	Denmark - 2004 - LOV (No. 447) - Allowed for messages with digital signature to be considered valid.	-
-	Russia - 2015 - On Amendments to Certain Legislative Acts of the Russian Federation (No. 186-FZ) - Allowed employees to file for insolvency.	-
-	Sweden - 2015 - No. 2014:1456 - Adapted insolvency law to EU cross-border insolvency provisions.	-

per articles. I end up with a dataset of 42 main insolvency law reforms considered to be relevant for each country's insolvency law development. To the best of my knowledge, this dataset is unique with regards to the depth of the information gathered, the length of the time frame considered and the number of countries in scope.

Table 2.6 provides an overview of the main insolvency law reforms that were enacted between 1985 and 2015 within the 20 countries in the sample. Reforms are shown corresponding to their year of enactment and their impact on the balance of power between the debtor and its creditors. A graphical analysis reveals that, the enactment of main insolvency law reforms seems to be concentrated in the years following the year 2000 and the year 2008. This suggests that legislators took action and started to amend their insolvency regimes following the 2000 and 2008 financial crises. However, reforms were only enacted a few years after the financial crises took place. This is consistent with usually lengthy procedures of political discussion and parliamentary law-making procedures.

In the absence of an urgent need for reform, political discussion and law-making procedures may stretch over multiple years. In Germany, for example, the 2011 insolvency law reform (ESUG) was enacted at the end of 2011 and brought into effect at the beginning of 2012. However, the parliamentary discussion that led to the enactment of the reform already started in early 2010. In addition to these lengthy discussions and procedures, policymakers might also deliberately opt to postpone the date of enactment of a reform. An example of such a deliberate choice is the 1994 German insolvency law reform which was enacted at the end of 1994. The reform aimed at introducing a new and unified insolvency regime following Germany's reunification. In order to provide firms and their stakeholders with sufficient time to adapt to the new insolvency regime, the policymakers decided that the reform should only come into effect with the beginning of 1999.

Table 2.7 provides a detailed overview of the main insolvency law reforms that were enacted between 1985 and 2015 within the 20 countries in the sample. When studying the reforms, I observe that insolvency regimes in the sample tend to converge towards a restructuring regime that is similar to the one currently active in the USA (Franken, 2004). This is most likely because the insolvency regime in the USA has been considered as a successful restructuring system providing: (i) an automatic stay on creditor enforcement; (ii) for the incumbent management to stay in place; (iii) the possibility to obtain new financing; (iv) voting rights only to impaired creditors; (v) the option to cram down dissenting creditors (Hotchkiss et al., 2008; Warren and Westbrook, 2008). Additionally, I observe that the insolvency regimes present a trend towards the establishment of preventive restructuring proceedings in order to avoid lengthy and costly in-court proceedings, e.g., Greece (2011), Italy (2012) or Portugal (2012). This is consistent with the view that during and following crises, creditors are inclined to prefer out-of-court to in-court proceedings (Laryea, 2010). Table 2.8 provides a detailed overview of the main insolvency law reforms that aimed at introducing or facilitating restructuring proceedings within the 20 countries in the sample between 1985 and 2015. Findings from this table are consistent with the above-mentioned trend towards more restructuring-centered insolvency regimes. Indeed, multiple countries revisited their insolvency law in order to facilitate restructuring proceedings, e.g., Austria

Table 2.6.: Main insolvency law reforms.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)
Country	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
Austria													D													D						**2**
Belgium													D												D							**2**
Denmark												C														C						**2**
Finland									D										C													**2**
France	D																				C											**2**
Germany										C																	C					**2**
Greece						D																	D				D				DD	**5**
Ireland						D																								C		**2**
Italy																			D		D	C						D				**4**
Luxembourg																					C											**1**
Netherlands																																**0**
Portugal																												DD				**2**
Spain																									C		D			D		**3**
Sweden			C									C																				**2**
UK		D														D		C														**3**
EU15 total	**1**	**1**	**1**	**0**	**0**	**2**	**0**	**0**	**1**	**1**	**0**	**2**	**2**	**0**	**0**	**1**	**0**	**1**	**2**	**0**	**3**	**1**	**1**	**0**	**2**	**2**	**3**	**3**	**0**	**2**	**2**	**34**
Brazil																			C													**1**
China																						C										**1**
India																																**0**
Russia								D						C				D						C						C		**5**
BRIC total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**7**
USA																					C											**1**
Total	**1**	**1**	**1**	**0**	**0**	**2**	**0**	**1**	**1**	**1**	**0**	**2**	**2**	**1**	**0**	**1**	**0**	**2**	**3**	**0**	**4**	**2**	**1**	**1**	**2**	**2**	**3**	**3**	**0**	**3**	**2**	**42**

Notes: This table provides an overview of the main insolvency law reforms between 1985 and 2015 in each country of the sample. I denote the enactment of a debtor-friendly reform with a "D" and a creditor-friendly reform with a "C". A brief summary of each country's insolvency law can be found in Appendix A.1 to Appendix A.20.

Table 2.7.: Details on main insolvency law reforms.

(1)	(2)	(3)	(4)	(5)	(6)
Country	Year	Name	Main purpose	Main changes to former law	Overall impact
Austria	1997	Insolvenzrechtsänderungsgesetz (IRÄG)	Introduce the Business Reorganization Act for debtors under temporary financial difficulties	Defined application requirements, restructuring procedures, and roles	Debtor-friendly
Austria	2010	Insolvenzrechtsänderungsgesetz (IRÄG)	Unify Austrian insolvency law and facilitate restructuring	Introduced a unified Insolvency Act; Lowered the threshold for self-administration; Restricted contract termination during moratorium	Debtor-friendly
Belgium	1997	Loi relative au concordat judiciaire	Introduce business restructuring	Introduced formal restructuring procedure; Established an early warning system for financial distress	Debtor-friendly
Belgium	2009	Loi relative à la continuité des entreprises	Facilitate restructuring through the preservation of the legal entity or the business	Introduced two out-of-court and three court-supervised restructuring proceedings; Improved proceedings to transfer businesses liability-free; Established that the debtor remains in control during restructuring	Debtor-friendly
Brazil	2003	Nova Lei de Falências e Recuperação de Empresas (No. 11,101/2005)	Prevent premature liquidations, strengthen capital markets and promote lending	Introduced extra-judicial and judicial restructuring proceedings; Ranked secured creditors' claims higher; Limited the amount of labor claims	Creditor-friendly
China	2006	The New Bankruptcy Law	Establish a new insolvency law regime	Extended the scope beyond state-owned firms; Established procedures for restructuring proceedings; Introduced the insolvency trustee/liquidator	Creditor-friendly
Denmark	1996	LOV (No. 382)	Modernize insolvency proceedings	Abolished the interim trustee, now direct trustee appointment; Ranked "Green taxes" before general claims; Introduced diverse time limits especially regarding law suit	Creditor-friendly
Denmark	2010	LOV (No. 718)	Shift restructuring from debt restructuring to firm restructuring	Introduced firm restructuring proceedings; Required compulsory composition and/or business transfer; Introduced possibility to remove the debtor's management	Creditor-friendly
Finland	1993	Restructuring of Enterprises Act (No. 47/1993)	Establish a legal framework for the restructuring of economically viable debtors in financial difficulties	Introduced restructuring proceedings as an alternative to liquidation	Debtor-friendly

Continued on next page - a brief summary of each country's insolvency law can be found in Appendix A.1 to Appendix A.20.

Table 2.7 - continued from previous page

(1)	(2)	(3)	(4)	(5)	(6)
Country	Year	Name	Main purpose	Main changes to former law	Overall impact
Finland	2003	New Bankruptcy Act (No. 120/2004)	Increase efficiency and flexibility during insolvency	Established that the trustee is appointed at the beginning of proceedings; Introduced possibility for creditors to set up a creditor's committee advising the trustee; Prohibited credit institutions from off-setting a claim against the debtor's assets if useful for general payments	Creditor-friendly
France	1985	Loi relative au redressement et à la liquidation judiciaires des entreprises (No. 85-98)	Introduce restructuring proceedings	Introduced restructuring proceedings with necessary procedures and roles	Debtor-friendly
France	2005	Loi de sauvegarde des entreprises (No. 2005-845)	Prevent insolvency and better involve creditors	Introduced safeguard proceedings; Established a more active role for creditors and better creditor protection; Simplified and accelerated liquidation proceedings; Redesigned the "conciliation procedure" (formerly amicable settlement); Established mandataire ad hoc proceedings as an autonomous procedure	Creditor-friendly
Germany	1994	Insolvenzordnung (InsO)	Create incentives for an efficient trade-off between liquidation and restructuring	Introduced less restrictive criteria for the opening of insolvency proceedings; Established "imminent insolvency" as a ground for insolvency; Introduced the insolvency plan in liquidation and restructuring proceedings	Creditor-friendly
Germany	2011	Gesetz zur weiteren Erleichterung der Sanierung von Unternehmen (ESUG)	Promote restructuring and strengthen creditor rights	Introduced protection scheme proceedings; Established a preliminary creditors committee with wide powers; Allowed for debt-to-equity swaps	Creditor-friendly
Greece	1990	Modernization, Development and other Provisions (No. 1882/1990)	Introduce pre-insolvency procedures	Introduced court ratified creditors' composition with cram down; Established going-concern liquidation (special liquidation proceedings)	Debtor-friendly
Greece	2007	Bankruptcy Code (No. 3588/2007)	Promote restructuring over liquidation	Introduced pre-insolvency rehabilitation without cram down (conciliation proceedings); Introduced restructuring proceedings	Debtor-friendly
Greece	2011	Establishment of the Independent Single Public Procurement Authority and the Central Electronic Registry Public Procurement (No. 4013/2011)	Reform pre-insolvency composition procedures	Replaced conciliation proceedings by rehabilitation proceedings; Reinstated special going-concern liquidation	Debtor-friendly

Continued on next page - a brief summary of each country's insolvency law can be found in Appendix A.1 to Appendix A.20.

Table 2.7 - continued from previous page

(1)	(2)	(3)	(4)	(5)	(6)
Country	Year	Name	Main purpose	Main changes to former law	Overall impact
Greece	2015	Pension provisions (No. 4335 & 4336/2015)	Improve insolvency law in order to comply with bail-out program requirements	Strengthened rehabilitation procedure; Strengthened special liquidation procedure; Changed the priority order to benefit creditors and secured creditors	Debtor-friendly
Ireland	1990	Companies (Amendment) Act	Establish examinership as an alternative to liquidation	Introduced examinership proceedings as a restructuring alternative to liquidation	Debtor-friendly
Ireland	2014	Companies Act	Streamline liquidation procedure and make examinership more attractive to small firms	Streamlined provisions for liquidation proceedings; Optimized examinership to make it more cost-efficient for small companies	Creditor-friendly
Italy	2003	Marzano Law (No. 347)	Enable continuation of the debtors' business	Introduced new extraordinary restructuring proceeding	Debtor-friendly
Italy	2005	Urgent Provisions under the Action Plan for the economic, social and territorial development (No. 35)	Make insolvency law more debtor-friendly	Made concordato preventivo more effective; Introduced consensual restructuring agreements for work-outs; Introduced pre-insolvency composition	Debtor-friendly
Italy	2006	Systematic reform of the rules on insolvency proceedings (No. 5)	Strengthen creditors' rights	Allowed more influence by creditors with respect to the appointment of the trustee; Established that less actions by the trustee are subject to authorization	Creditor-friendly
Italy	2012	Urgent measures for the growth of the country (No. 83)	Offer more flexible options for business restructuring	Introduced the possibility for debtors to work on a restructuring plan under a stay of enforcement; Introduced a going-concern pre-insolvency restructuring plan	Debtor-friendly
Luxemburg	2005	Loi sur les contrats de garantie financière	Enhance legal security of creditors taking collateral	Introduced protection of netting and financial collateral arrangements	Creditor-friendly
Portugal	2012	Decree-Law No. 16/2012	Introduce debtor recovery as a going concern	Introduced pre-insolvency special revitalization proceedings	Debtor-friendly
Portugal	2012	Decree-Law No. 178/2012	Facilitate recovery through early and fast agreements	Introduced out-of-court restructuring proceedings	Debtor-friendly
Russia	1992	On Insolvency of Enterprises (No. 3929-1)	Initiate transition to a market economy	Introduced balance sheet test to initiate insolvency; Defined possibility to start insolvency proceedings three months after default	Debtor-friendly

Continued on next page - a brief summary of each country's insolvency law can be found in Appendix A.1 to Appendix A.20.

Table 2.7 - continued from previous page

(1)	(2)	(3)	(4)	(5)	(6)
Country	Year	Name	Main purpose	Main changes to former law	Overall impact
Russia	1998	On Insolvency (No. 6-FZ)	Establish functioning insolvency law	Replaced balance sheet test by cash-flow test; Introduced claw-back provisions; Established a stay on assets during external administration	Creditor-friendly
Russia	2002	On Insolvency (No. 127-FZ)	Streamline existing insolvency law and address deficiencies	Changed creditor priority ranking; Impeded creditors' possibilities to start insolvency proceedings; Pushed for better quality of trustees	Debtor-friendly
Russia	2008	On Amendments to Certain Legislative Acts of the Russian Federation (No. 306–FZ)	Improve rights of secured creditors	Introduced secured creditors vote at creditors' meetings; Improved foreclosure rules for secured creditors	Creditor-friendly
Russia	2014	On Amendments to the Federal Law "On Insolvency (Bankruptcy)" and the Russian Federation Code of Administrative Offenses (No. 482-FZ)	Limit abusive practices by debtors	Restricted the debtor's right to choose the interim trustee; Enhanced the trustee's possibilities to acquire information; Introduced equal voting rights and more influence for secured creditors	Creditor-friendly
Spain	2009	RDL No. 3/2009	Adapt and increase efficiency of existing insolvency law in light of financial crisis	Introduced abbreviated proceedings next to ordinary proceedings; Established insolvency postponement measures	Creditor-friendly
Spain	2011	Law No. 38/2011	Promote use of court-supervised proceedings and further increase efficiency of existing proceedings	Encouraged refinancing agreements by introducing stay on assets; Introduced debtor-in-possession financing; Reduced number of insolvency administrators to one	Debtor-friendly
Spain	2014	RDL No. 4/2014	Further improve conditions for refinancing agreements	Strengthened cram down mechanisms for refinancing agreements; Established a stay on enforcement once refinancing negotiations started; Limited rights for directors/shareholders to block restructuring plans	Debtor-friendly
Sweden	1987	Bankruptcy Act Konkurslag (No. 1987:672)	Introduce liquidation proceedings	Replaced the old insolvency law; Strengthened creditors as a collective at the expense of individual creditors and debtors	Creditor-friendly
Sweden	1996	Company Reorganization Act Lag om företagsrekonstruktion (No. 1996:764)	Introduce restructuring proceedings	Introduced new restructuring proceedings; Integrated composition regulations	Creditor-friendly
UK	1986	Insolvency Act	Introduce restructuring-friendly insolvency regime	Introduced administration proceedings as well as voluntary arrangements	Debtor-friendly

Continued on next page - a brief summary of each country's insolvency law can be found in Appendix A.1 to Appendix A.20.

Table 2.7 - continued from previous page

(1)	(2)	(3)	(4)	(5)	(6)
Country	Year	Name	Main purpose	Main changes to former law	Overall impact
UK	2000	Insolvency Act	Introduce new company voluntary arrangement regime for small companies	Introduced possibility for small firms to propose a company voluntary arrangement	Debtor-friendly
UK	2002	Enterprise Act	Facilitate firm restructuring	Established administration as the principal procedure; Limited rights of secured creditors to appoint a receiver	Creditor-friendly
USA	2005	Bankruptcy Abuse Prevention and Consumer Protection Act (BAPCA)	Strengthen creditor rights and discourage abuses	Introduced possibility for creditors to request dismissal or conversion of a chapter 11 case; Expanded 'Safe Harbor Provisions' to further derivatives and securities contracts; Established disclosure of debtor information to creditors outside of general committees	Creditor-friendly

Notes: This table provides details on the main insolvency law reforms between 1985 and 2015 in each country of the sample. Columns (2) and (3) provide information on the reform's name and its year of enactment. Columns (4) and (5) add details about the reform's main purpose an its changes to the former insolvency law. Finally, Column (6) provides an assessment of the reform's impact on the balance of power between debtors and creditors, i.e., whether the reform can be considered as debtor- or creditor-friendly. A brief summary of each country's insolvency law can be found in Appendix A.1 to Appendix A.20.

(2010), Germany (2011) or UK (2002) while other countries first had to overhaul their insolvency law and introduce the possibility for restructuring proceedings, e.g., Brazil (2003), China (2006) or Greece (2007).

In the future, both these trends towards restructuring and preventive restructuring proceedings will likely be further enhanced by propositions on optimal insolvency law design. Indeed, the European Commission and UNCITRAL build their recommendations on optimal insolvency design on US-like insolvency features and out-of-court proceedings. Therefore, I expect the trends to persist in the future and lead to a stronger convergence of common law and civil law countries (La Porta et al., 2008). However, given lengthy procedures in politics and law-making it is unlikely that insolvency laws will become perfectly similar in the short-term. This is consistent with the intent of the European Commission aiming at providing a set of binding common rules on formal insolvency proceedings without imposing a single common insolvency design (European Commission, 2014, 2016).

2.6. Conclusion

In this paper, I summarize the existing law and finance literature and interpret its theoretical considerations, main empirical findings, and substantial criticism. Furthermore, I include a review of insolvency law and its main reforms in 20 selected countries including the EU15, BRIC and USA. I base this review on a new dataset providing information on: (i) the status quo of insolvency law in each country as of 2015; (ii) 42 main insolvency law reforms enacted from 1985 to 2015.

This study is particularly relevant for firms and their stakeholders when making decisions, but more generally also for the overall economic system since insolvency remains an important issue to governments and policymakers. In general, insolvency law aims at regulating the competition among the firm's stakeholders over its assets in the case of insolvency (Aghion et al., 1994). Its two main goals are to minimize ex-ante and ex-post inefficiencies by specifying the rights and the level of their protection assigned to the firm and its stakeholders (e.g., Hart, 1995; Cornelli and Felli, 1997; Hotchkiss et al., 2008). This results in a balance of power between the firm and its stakeholders, determining the degree of

Table 2.8.: Main insolvency law reforms facilitating restructuring.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)
Country	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
Austria													I													F						**2**
Belgium													I												F							**2**
Denmark																										I						**1**
Finland									I																							**1**
France	I																				F											**2**
Germany										I																	F					**2**
Greece																							I				F					**2**
Ireland						I																								F		**2**
Italy																			I		I							F				**3**
Luxembourg																																**0**
Netherlands																																**0**
Portugal																												II				**2**
Spain																											F					**1**
Sweden												I																				**1**
UK		I														F		F														**3**
EU15 total	**1**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**1**	**2**	**0**	**0**	**1**	**0**	**1**	**1**	**0**	**2**	**0**	**1**	**0**	**1**	**2**	**3**	**3**	**0**	**1**	**0**	**24**
Brazil																			I													**1**
China																						I										**1**
India																																**0**
Russia																																**0**
BRIC total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
USA																																**0**
Total	**1**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**1**	**2**	**0**	**0**	**1**	**0**	**1**	**2**	**0**	**2**	**1**	**1**	**0**	**1**	**2**	**3**	**3**	**0**	**1**	**0**	**26**

Notes: This table provides an overview of the main restructuring reforms between 1985 and 2015 in each country of the sample. I denote the introduction of restructuring proceedings in the insolvency law with an "I" and a reform that aims at facilitating restructuring proceedings with a "F". A brief summary of each country's insolvency law can be found in Appendix A.1 to Appendix A.20.

satisfaction they can expect in the case of failure (White, 2007), and thus defining their ex-ante behavior (e.g., Stiglitz and Weiss, 1981; Hart, 2001; Bebchuk, 2002).

To get a more detailed understanding on the balance of power between the firm and its stakeholders, I collect information on the insolvency law as of 2015 and on its main reforms enacted between 1985 and 2015 for the 20 countries in the sample (EU15, BRIC and USA). I end up with a dataset providing information for the 20 countries in the sample: (i) on the status quo of insolvency law as of 2015; (ii) on a total of 42 main insolvency law reforms enacted from 1985 to 2015. To the best of my knowledge, this dataset is unique with regards to the depth of the information gathered, the length of the time frame considered and the number of countries in scope. Descriptive analyses of this dataset suggest three main results. First, insolvency regimes in the sample differ in their insolvency law design and are nowadays still characterized by lengthy and costly insolvency procedures. Second, main insolvency law reforms within the period of 1985 to 2015 show that insolvency regimes in the sample tend to converge towards a restructuring regime that is similar to the one currently active in the USA (Franken, 2004). Third, there exists an observable trend towards the establishment of preventive restructuring proceedings in order to avoid lengthy and costly in-court proceedings.

Overall, these findings are consistent with the view that insolvency regimes around the world are expected to show a stronger convergence in the future (La Porta et al., 2008). The above-mentioned trends might even be further encouraged and accelerated since propositions on optimal insolvency law design typically build their recommendations on US-like insolvency features and out-of-court proceedings (e.g., United Nations Commission on International Trade Law, 2005; European Commission, 2016).

The paper adds to the literature of law and finance in general. So far, a vast majority of scholars has relied on empirical proxies proposed by La Porta et al. (1998) and cross-sectional analyses of the legal status quo to study the relationship between law and finance (e.g., La Porta et al., 1998; Levine, 1998, 1999; Demirgüç-Kunt and Levine, 2004; Djankov et al., 2007, 2008a,b; La Porta et al., 2008). Few scholars have then addressed the resulting endogeneity issues by relying on the study of insolvency law reforms (e.g., Scott and

Smith, 1986; Djankov et al., 2007; Araujo et al., 2012; Vig, 2013; Hackbarth et al., 2015). In contrast to them, I present a detailed study of cross-country insolvency law and its development by means of legal reform. By leaving empirical proxies aside and collecting time series data, I am able to identify global trends in insolvency law and distinguish policy effects on a more granular level. The collected dataset may serve as a basis for future research empirically examining the existing law and finance theory from a more detailed perspective of insolvency law reforms in a cross-country setting.

This paper has important implications for governments and policymakers, but also scholars in the field of law and finance. First, it presents a summary of the existing law and finance literature, its theoretical considerations, main empirical findings, and substantial criticisms as of today. Second, it assesses the status quo of insolvency law in a set of selected countries and provides insights on current trends and developments. Third, it provides an overview on main legal reforms altering the insolvency law in a significant way. Overall, the papers' findings are in line with existing research (Franken, 2004) and may be helpful as a basis for future empirical research.

3. The Balance of Power between Creditors and the Firm: Evidence from German Insolvency Law

Abstract

In 2011, German legislators passed the latest reform to German Insolvency Law (ESUG). ESUG mandates that creditors of larger firms can exert more influence on the appointment of the insolvency administrator, resulting in a shift of power from shareholders to creditors. Based on difference-in-differences estimation, we find that larger firms reduced financial leverage around this event, while firms below the size threshold of the law increased debt levels. Furthermore, after the enactment of ESUG, larger firms spend less money on investment, while smaller firms invest more and benefit from lower cost of debt. Overall, the evidence is consistent with the view that, in an environment where creditors are already well protected, even stronger creditor protection does not necessarily foster borrowing.

Keywords: leverage, bankruptcy, insolvency, agency theory
JEL Codes: G32, G33, G38

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Current status: Working Paper
Presentations: presented at FMA European Conference, Lisbon, Portugal, June 22, 2017
accepted at SGF Conference, Zurich, Switzerland, April 6, 2018

Note: In this chapter I use the first-person plural narrative.

3.1. Introduction

Ever since the seminal work by Jensen and Meckling (1976) and Myers and Majluf (1984), researchers have argued that information asymmetries and conflicting interests between the firm and its creditors affect a firm's capital structure. As a result of these agency problems, creditors may need to fear expropriation through shareholders or management, and thus they may be reluctant to provide firms with sufficient funds so that firms may need to forgo investment projects with positive net present value.

To reduce agency cost of debt, many countries have therefore mandated laws to better protect creditors, which is of particular importance when firms file for insolvency. In this regard, recent literature has argued that, by shifting power from shareholders to creditors, regulators have been able to increase the size of capital markets and private debt markets in particular (e.g., La Porta et al., 1997, 1998; Levine, 1998, 1999; Djankov et al., 2007; La Porta et al., 2008), which, in turn, is supposed to improve a firm's external financing possibilities.

In this paper, we exploit the German insolvency law[1] reform passed in late 2011 ("Gesetz zur weiteren Erleichterung der Sanierung von Unternehmen", short "ESUG") to show that a shift in the balance of power from shareholders to creditors can actually negatively affect firm borrowing. Specifically, we posit that, when filing for insolvency in a strong creditor protection regime, the firm and its shareholders may fear the extent of power attributed to creditors. Therefore, firms may be reluctant to borrow in the first place.

Historically, Germany is a country where creditors were always relatively well protected. For example, the German Commercial Code ("Handelsgesetzbuch") is largely driven by the so-called "caution principle" ("Vorsichtsprinzip"), which requires firms to prepare their financial statements conservatively so that creditors' assessment of a firm is not clouded by inflated earnings and that the available mass for insolvency proceedings is maximized. The strong German creditor protection is also reflected in a high value of the creditor protection index by Djankov et al. (2007).[2] ESUG may have even more benefited creditors,

[1] In this paper, the term "insolvency law" is used as a generic term for corporate bankruptcy, insolvency and restructuring laws.

[2] In 2003, the creditor rights index amounted to 3 in Germany, while the sample mean was about 1.81 (Djankov et al., 2007).

which lets Paulus et al. (2015) conclude that in "Germany, like in quite a number of other jurisdictions, one finds as the main purpose [of the insolvency code] the best possible satisfaction of the creditors" (p. 3).

ESUG, passed in late 2011 and enacted in early 2012[3], intended to both update German insolvency law and to reduce its lack of attractiveness relative to other European insolvency regimes. For this, ESUG implemented a set of new tools that aimed at strengthening creditor protection and facilitating firm restructuring. Among other things, the law introduced a preliminary creditors' committee in the early phase of insolvency proceedings. This committee is entitled to appoint the preliminary insolvency administrator that is to become insolvency administrator once main insolvency proceedings have been opened by the court. During insolvency proceedings, the insolvency administrator is entitled to manage the firm's assets while driving the insolvency procedure. In the case of liquidation, he determines the insolvency estate's value and its distribution to creditors. In the case of restructuring, he develops an insolvency plan that is subject to creditors' approval. Consequently, ESUG resulted in greater creditor power and influence near and during insolvency proceedings since the insolvency administrator has considerable influence on the outcome of the insolvency procedure.

From an econometric point of view, we can use the introduction of a preliminary creditors' committee for identification. In particular, the appointment of a preliminary insolvency administrator by the preliminary creditors' committee is only required for German firms that are at least medium-sized, while being optional for small-sized German firms.[4] However, anecdotal evidence from insolvency practitioners suggests that the voluntary summoning of a preliminary creditors' committee in small firm insolvencies remains unattractive, and thus rarely used, due to its costs in terms of time and financial resources. Since there is no other rule related to ESUG that applies to the same size threshold, we can perform a difference-in-differences analysis and compare the development of financial leverage of larger to smaller firms around this event. This allows us to identify the causal impact of

[3] On September 1, 2010, the German Federal Ministry of Justice presented a first draft of ESUG, which was later passed into law on December 7, 2011 and became effective on March 1, 2012.

[4] According to the German Commercial Code, firms that meet at least two of the following criteria in the respective previous fiscal year are considered to be at least medium-sized: total assets greater than €4.84m, total sales greater than €9.68m, and average number of employees greater than 50.

changes in creditor protection on a firm's financial leverage.

For the empirical analysis, we rely on a set of 284 German firms over the 2009 to 2013 period. Unfortunately, the dataset is relatively small due to limited data availability on small-sized German firms. Still, it allows to identify the effect of ESUG on a firm's financial leverage. After treatment, we observe that larger firms above the size threshold reduced financial leverage relative to their smaller counterparts by about five percentage points.[5] Further analysis reveals that the reduction in financial leverage can be explained by a shift from debt to equity, and more specifically by the reduction of short-term leverage. The results are robust to: (i) the inclusion of different sets of firm, year, and industry-year fixed effects; (ii) robustness tests addressing threshold manipulation and sample firm size; (iii) placebo tests where we rely on an alternative time window and different size criteria. We also show that the parallel trends assumption is not violated.

Finally, we find evidence that smaller firms benefit from lower average interest rates after the introduction of ESUG. We also show that larger firms reduce investment after the introduction of ESUG. In contrast, smaller firms increase both leverage and investment in the aftermath of the introduction of ESUG. Overall, the evidence is consistent with the view that greater creditor protection results in a more costly insolvency procedure from the shareholder perspective. To avoid further losses of control, firms try to avoid debt, which, in turn, hinders investment and, ultimately, firm growth. In contrast, smaller firms may have benefited from the introduction of a preliminary creditors' committee, as it may have increased available debt supply because demand by larger firms has decreased.

The paper adds to the literature on law and finance in general. This far, few scholars have relied on changes in insolvency law as external shocks to examine the effects of creditor protection on financial leverage. In this regard, based on international data sets, e.g., Djankov et al. (2007), Haselmann et al. (2010) and Deakin et al. (2015) find mixed results regarding the influence of changing creditor rights on credit markets.[6] In contrast,

[5] In order to work with yearly accounting data, we assume that ESUG was introduced during the accounting year 2011, with yearend dates from July 1, 2011, to June 30, 2012. The fiscal year 2011 thus encompasses ESUG's parliamentary discussion, its adoption, and its coming into effect. In the following, we show that results are robust to removing the treatment year from the sample.

[6] Djankov et al. (2007) as well as Haselmann et al. (2010) find that increasing creditor protection is positively correlated to the size of credit markets. Deakin et al. (2015), on the other hand, show that the strengthening of creditor rights can be negatively related to private credit growth.

we use the introduction of ESUG as means of within-country identification, which is not affected by unobserved heterogeneity at the country-level, to examine the effects of creditor protection on financial leverage. Furthermore, the paper contributes to the literature on the determinants of capital structure. We show that changes in adverse selection costs as a result of better creditor protection affect a firm's capital structure. Thereby, the paper is related to theoretical frameworks by Jensen and Meckling (1976), Leland and Pyle (1977), or Myers and Majluf (1984).

This article has an important implication. Most of the literature on creditor protection argues that better creditor protection increases debt supply (e.g., La Porta et al., 1997, 1998; Levine, 1998, 1999; Djankov et al., 2007; La Porta et al., 2008). In contrast, we show that, even though credit supply may increase due to lower adverse selection costs to creditors, firms may actually forgo debt capital because together with their shareholders they may fear the extent of creditor power when creditors are too well protected. Overall, the evidence suggests that there may be a optimal level of creditor protection, and that beyond a certain threshold, debt becomes too costly for shareholders, which is why they may become reluctant to borrow.

The remainder of this paper proceeds as follows. Section 3.2 shortly summarizes the theoretical background. Section 3.3 provides an overview of German insolvency law and ESUG. Section 3.4 presents the empirical strategy and the data. In Section 3.5, we show empirical results for the effects of creditor protection on financial leverage. Finally, Section 3.6 concludes with a summary of findings and implications.

3.2. Theoretical considerations

Aghion et al. (1994) state that there is competition between stakeholders over the firm's assets during insolvency. They claim that if those stakeholders were able to specify the repartition of a firm's assets in a specific contract, a state regulated insolvency procedure would be redundant. In the context of real external financing, interest conflicts between debtors and creditors lead to economic inefficiencies (Berkovitch and Israel, 1999). First, a debtor may prefer unreasonable continuation of business leading to liquidation ineffi-

ciencies. Second, unreasonable business continuation by the debtor may lead to increased creditor risk, inducing financing inefficiencies. Consequently, the two main goals of insolvency law should be to minimize these ex-ante and ex-post inefficiencies (Hart, 1995; Cornelli and Felli, 1997; Hart, 2000).

Ex-ante inefficiency can be addressed by minimizing insolvency related agency costs of debt arising from the separation of ownership and control (Jensen and Meckling, 1976). Adequate penalization of management and shareholders (Fudenberg and Tirole, 1990; Povel, 1999) or the incentivizing mechanism of debt (Grossman and Hart, 1982; Claessens and Laeven, 2003) are two examples to achieve ex-ante efficiency. In contrast, ex-post efficiency requires that the insolvency law generates the highest value from the perspective of society (Hart, 1995, 2000). It should enable a quick and efficient liquidation of unviable firms, but also provide a clear and structured process to restructure viable firms (White, 1994; Kaiser, 1996; Eger, 2001; White, 2007). However, creditor protection comes at the cost of debtor protection and vice versa.

In the past, several researchers studied the balance of debtor and creditor protection. Specifically, they investigated the impact of insolvency law characteristics on the availability and conditions of external financing. Most of these studies performed cross-country analyses using the idea of a creditor protection index as proposed by La Porta et al. (1998). They find that poorer legal protection of creditors is positively related to smaller and narrower capital markets (La Porta et al., 1997, 1998), and that it is negatively related to the size of the private debt market (Djankov et al., 2007) or to recovery rates for creditors (Davydenko and Franks, 2008).

The creditor protection index as proposed by La Porta et al. (1998) has led to considerable discussion among researchers. Critics mainly focus on the choice of the right set of relevant criteria (e.g., Graff, 2008; Deakin et al., 2015) and the 'home-country' bias towards English Common Law jurisdictions when weighing dimensions (e.g., Lele and Siems, 2007; Siems and Deakin, 2010). Studies based on alternative definitions of the creditor protection index have provided empirical results partially contradicting previous studies (e.g., Cools, 2006; Ahlering and Deakin, 2007; Graff, 2008; Armour et al., 2009; Spamann, 2010; Buchanan

et al., 2014; Deakin et al., 2015).

In order to address these criticisms, other researchers have started to approach the law and finance theory from an insolvency law reform perspective. This new perspective allows to test for better empirical causality when considering insolvency law reforms as external shocks. Empirical evidence from these studies shows that increases in creditor protection and debt enforcement positively influence the size of the debt market (e.g., Haselmann et al., 2010), reduce the cost of debt (e.g., Scott and Smith, 1986), reduce indirect costs of bankruptcy (e.g., Sautner and Vladimirov, 2017), and affect the distribution of debt (e.g., Vig, 2013).

These findings support past theoretical observations. Insolvency law reforms that decrease creditor protection should lead to ex-ante monitoring costs thus reducing the availability of debt while increasing cost of debt (Eger, 2001). In contrast, reforms that increase creditor protection should increase the availability of debt and decrease the cost of debt. In other words, higher creditor protection increases ex-ante efficiency via reduced agency costs and thus mitigates the creditors' fear of expropriation (Rajan and Zingales, 1995; Weber, 2005; Armour et al., 2015).

Insolvency reforms that increase creditor protection should therefore lead to higher firm financial leverage (Kraus and Litzenberger, 1973). First, as it reduces interest asymmetries between debtors and creditors and thus agency cost of debt (Jensen, 1986). Second, because lower agency cost and higher availability of debt increase the attractiveness of debt in the firm's pecking order (Myers and Majluf, 1984). Thus, we could expect that ESUG's improvements in creditor protection positively affected firms' financial leverage in Germany.

However, a shift in the balance of power from shareholders to creditors could actually negatively affect firm borrowing. Specifically, we posit that, in an environment such as Germany where creditors are already well protected, shareholders may fear excessive dilution of their investment in the firm under insolvency when, as a result of new regulation, creditors become even more protected. Therefore, firms may be reluctant to borrow in the first place, i.e., demand for debt is lower, resulting in lower leverage in the aftermath

of ESUG. In this regard, it is worth noting that, historically, Germany is a country where creditors were always relatively well protected. This is reflected in the German Commercial Code, which is largely driven by the so-called "caution principle" meant to protect creditors and the relatively high values for the creditor protection index by Djankov et al. (2007).

Ultimately, we will test these competing hypotheses by comparing the behavior of larger and smaller firms around the introduction of ESUG in order to learn more about the effects of a specific part of ESUG that strengthened creditors' power. While ESUG mandated that larger firms must appoint a preliminary creditors' committee, and thus strengthened creditor rights, smaller firms do not need to appoint this committee.

3.3. Insolvency law in Germany and the introduction of ESUG

3.3.1. Overview of German insolvency law

Insolvency procedures in Germany can be initiated either by the firm or its creditors by filing for insolvency at the insolvency court. The German insolvency law ("Insolvenzordnung") defines three options to file for insolvency: insolvency due to illiquidity, over-indebtedness, and imminent insolvency. Illiquidity occurs when the firm is not able to make due payments. Over-indebtedness arises when the firm's liabilities exceed its assets and there is only a small likelihood for business continuation. Imminent insolvency occurs when the firm is at risk not to meet its obligations in the near future.

After filing for insolvency, the German insolvency procedure can be divided in two steps. Preliminary insolvency proceedings cover the period up until the court's decision to open main insolvency proceedings. They primarily aim at determining whether a firm meets the conditions to open insolvency proceedings, i.e., whether there is a valid reason for the filing and whether the firm has enough assets to cover procedural costs. During preliminary insolvency proceedings, creditors are prohibited to enforce their individual claims and can be crammed down by a simple majority of creditors. In order to protect creditors' rights in this phase, a preliminary creditors' committee is to be appointed for

firms that are at least medium-sized.[7] Firms are entitled to file for protection scheme proceedings, which are continued as self-administration in main proceedings. Protection scheme proceedings allow firms to set up an insolvency plan and, correspond to debtor-in-possession proceedings under the supervision of a trustee.

Main insolvency proceedings begin after the court's decision to open insolvency proceedings and are handled by the insolvency administrator. The insolvency administrator chairs two creditors' meetings to decide between firm liquidation and restructuring. First, an informational hearing aims to inform creditors and decide upon a potential firm liquidation. Second, an examination hearing takes place to comprehensively gather creditors' claims. During this process, creditors' claims are subject to an automatic stay. Should creditors decide against liquidation and thus, in favor of restructuring, the insolvency administrator and the debtor can submit an insolvency plan proposal to the insolvency court. The insolvency plan could, for example, foresee out-of-court restructuring, sale of the firm as a going concern, piecemeal liquidation, and debt-to-equity swaps. Adoption of the insolvency plan requires two conditions: a simple majority in every group of creditors (e.g., junior secured, senior secured) and the acceptance by at least half of the total amount of claims. Dissenting groups of creditors could be subject to a cram-down ordered by the court if they are not likely to be placed at a disadvantage by the insolvency plan. If the debtor is granted self-administration by the court, and there exists a supportive majority of creditors, the insolvency administrator is replaced by a creditor's trustee with supervisory function. Termination of self-administration can be requested at any time by a qualified majority of creditors.

Insolvency proceedings are terminated by public court order either when all proceeds of liquidation have been distributed or an insolvency plan has been adopted. Early termination is possible in three cases upon the debtor's request: if opening grounds no longer exist, if all claimants consent to end insolvency proceedings, or in case of insufficient assets to cover procedural costs.

[7] According to the German Commercial Code, firms that meet at least two of the following criteria in the respective previous fiscal year are considered to be at least medium-sized: total assets greater than €4.84m, total sales greater than €9.68m, and average number of employees greater than 50.

3.3.2. The 2011 German insolvency law reform - ESUG

ESUG - which is short for "Gesetz zur weiteren Erleichterung der Sanierung von Unternehmen" ("firm restructuring facilitation reform") - was passed on December 7, 2011, by the German Parliament and came into effect on March 1, 2012. The German legislator followed two main goals with the introduction of ESUG. First, reform German insolvency law and address criticism of the current insolvency law in place ("Insolvenzordnung", short InsO). Second, increase the relative attractiveness of German insolvency law compared to other European insolvency regimes.

The introduction of InsO in 1999 was considered a historical event in Germany's insolvency legislation, replacing the existing liquidation-oriented code with modern understandings of insolvency. However, deficiencies of InsO became evident in the following years: high financial accountability of the preliminary insolvency administrator; cases with no reasonable business continuation until the opening of proceedings; delays due to high creditor autonomy over the insolvency administrator; almost non-existent use of imminent insolvency filings; high financial knowledge requirements for courts; high complexity, bureaucracy, and cost of insolvency plan proceedings; and complicated debt-to-equity swaps (Kranzusch and Günterberg, 2001). Although InsO had achieved a complete modernization of the previous insolvency law, it became clear that there was need for additional reform.

Following the enactment of the European Insolvency Regulation (EIR) on May 31, 2002, German insolvency law had lost attractiveness relative to other European insolvency regimes due to InsO's deficiencies (European Council, 2000). In accordance with the EIR, European firms are entitled to file for insolvency in any member state of the European Union (EU) where they possess an establishment. However, main proceedings have to be opened and held in the country where the firm has its Center of Main Interests (COMI). In absence of proof of the contrary, the COMI is to be assumed at the location of the firm's registered office (Clifford Chance, 2015). This rather weak formulation has led firms such as Deutsche Nickel, Damovo, or Schefenacker to move their registered office's location - respectively their COMI - to a foreign insolvency regime within the EU - specifically to the United Kingdom. However, moving a firms' registered office location is costly in terms

of time and financial resources and might not always lead to the desired effect. Indeed, the registered office presumption might also be rebutted as seen in the case of Eurofood (Kaczor, 2010).

Kaczor (2010) explains that firms might have various reasons to shift their COMI to a specific jurisdiction within the EU. These reasons may include a familiar restructuring environment for the firm's stakeholders, differences in the degree of control over the restructuring process, the appointment of administrators, and the availability of insolvency pre-packs. In this regard, creditor-friendly jurisdictions are supposed to be attractive to firms that wish to improve their financing conditions. Thus, the United Kingdom is considered particularly attractive to European firms since it provides their creditors with insolvency pre-packs, schemes of arrangement and voluntary arrangements. Even though COMI migrations remained isolated cases, the German Bundestag wanted to address this possibility of forum shopping with ESUG by focusing on InsO's deficiencies.

On September 1, 2010, the German Federal Ministry of Justice presented a first draft of ESUG.[8] The legislator pursued the goal to further improve successful restructuring of firms by increasing debtor and creditor involvement. The reform focused on three key aspects: increase and strengthen creditor influence, optimize insolvency plan proceedings, and enhance self-administration.

Stronger creditor influence was achieved by establishing a stronger creditor position and involvement during insolvency proceedings, especially for firms that are at least medium-sized.[9] ESUG introduced the appointment of a preliminary creditors' committee and provided it with decision and influencing rights during preliminary insolvency proceedings. Specifically creditors are entitled - through the creditors' committee - to appoint the preliminary insolvency administrator that is to become insolvency administrator during main insolvency proceedings. A unanimous proposal for the position of preliminary insolvency administrator has a binding implication for the insolvency court to also appoint the proposed person as insolvency administrator. The insolvency court cannot deviate from a

[8] See Verlag C. H. Beck (2016) for an overview on ESUG's historical development.

[9] According to the German Commercial Code, firms that meet at least two of the following criteria in the respective previous fiscal year are considered to be at least medium-sized: total assets greater than €4.84m, total sales greater than €9.68m, and average number of employees greater than 50.

proposal as long as the candidate provides sufficient business experience and his or her independence is not to be doubted. Thus, the insolvency court is inclined to accept the proposal for preliminary insolvency administrator. In the case of small firm insolvency, there is anecdotal evidence that suggests that insolvency courts refrain from voluntarily summoning a preliminary creditors' committee due to its costs in terms of time and financial resources.

Optimization of insolvency plan proceedings was achieved by restricting the possibilities for dilatory action by creditors. Before ESUG, creditors who had been disadvantaged by the insolvency plan could delay or stop insolvency plan proceedings. Debtors now freeze specific compensation funds for creditor satisfaction in case that the disadvantage of a creditor is proved at a later point in time. Objections against the approved insolvency plan are now only accepted if the resulting creditor's disadvantage cannot be satisfied trough the debtor's compensation funds. A further significant improvement was the facilitation of debt-to-equity swaps, which allow for the conversion of creditors' claims into equity shares. Both debtors and creditors are supposed to benefit from debt-to-equity swaps since the debtor can overcome over-indebtedness and re-establish liquidity, while creditors are awarded direct influence on the firm in return.

Self-administration was enhanced by the appointment of an insolvency trustee instead of a preliminary insolvency administrator. Thus, situations where a strong insolvency administrator hindered efficient firm management by the debtor can now be avoided. Additionally, ESUG introduced protection scheme proceedings granting the debtor a three-month period to prepare an insolvency plan, during which the debtor is protected from creditor enforcement and is allowed to continue its business. However, protection scheme proceedings come at the cost of a third party certification of the debtor's solvency and the need of positive prospects regarding insolvency plan success.

Overall, ESUG has both strengthened and weakened different creditor rights. In this paper, we can exploit a certain aspect of ESUG that has clearly benefited creditors - the appointment of a preliminary creditors' committee. While this committee is now mandatory for firms that are at least medium-sized, its appointment is voluntary for

smaller firms. As there is no other rule related to ESUG that applies to the same size threshold, we compare the behavior of larger and smaller firms around the introduction of ESUG to learn more about the effects of this certain rule that strengthened creditors' power.

3.4. Empirical strategy

3.4.1. Methodology

We rely on a difference-in-differences strategy (DiD) around the introduction of ESUG to better understand the causal impact of creditor protection on a firm's financial leverage.[10] We exploit for identification that, following the introduction of ESUG, small-sized German firms[11] are not subject to a mandatory preliminary creditors' committee once they file for insolvency. This setting ensures that, in larger firms, the appointment of a preliminary creditors' committee is not a voluntary decision by the debtor, i.e., the firms' owners or managers. As there is no other rule related to ESUG that applies to the same size threshold, we use this setting for our DiD analyses.

On September 1, 2010, the German Federal Ministry of Justice presented a first draft of ESUG. The reform was later passed on December 7, 2011, by the German Parliament and came into effect on March 1, 2012. The legislator did not include any transition period since there were no compliance requirements towards firms. In order to work with yearly accounting data, we select the accounting year 2011 (from July 1, 2011, to June 30, 2012) as a proxy for the introduction of ESUG. Since yearend dates for the accounting year 2011 run from July 1, 2011, to June 30, 2012, the accounting year 2011 encompasses ESUG's parliamentary discussion, its adoption, and its coming into effect. Additionally, we analyze time windows of plus/minus one (2010 to 2012) and two years (2009 to 2013) around ESUG's introduction.

The treatment group comprises medium-sized German firms that are subject to the man-

[10] DiD designs are frequently applied in empirical finance research. A detailed discussion of DiD designs can, for example, be found in Atanasov and Black (2015) or Roberts and Whited (2013).

[11] According to the German Commercial Code, firms that meet at least two of the following criteria in the respective previous fiscal year are considered to be at least medium-sized: total assets greater than €4.84m, total sales greater than €9.68m, and average number of employees greater than 50.

datory setup of a preliminary creditors' committee in the case of insolvency. The control group consists of small-sized German firms which would not have to setup a mandatory preliminary creditors' committee in the event of insolvency and would refrain from doing so on a voluntary basis according to anecdotal evidence. As suggested by Atanasov and Black (2015), we use an identical number of size-matched control firms to reduce size differences between treated and control firms. The DiD specification is as follows:

$$\begin{aligned}\text{LEVERAGE}_{i,t} = \alpha_i + \tau_t + \gamma_{j,t} \\ + \gamma \cdot \text{TREATED}_i \\ + \delta \cdot \text{POST}_t \\ + \beta \cdot \text{TREATED}_i \cdot \text{POST}_t \\ + \overrightarrow{\nu} \cdot \overrightarrow{\text{X}}_{i,t} \\ + \epsilon_{i,t}.\end{aligned}$$

$\text{LEVERAGE}_{i,t}$ is the financial leverage of firm i in year t. α_i, τ_t and $\gamma_{j,t}$ are firm, year and industry-year fixed effects, respectively. TREATED_i is a dummy equal to one for each firm in the treatment group and zero for each firm in the control group. POST_t is a dummy equal to one in and after the 2011 accounting year, i.e., after the introduction of ESUG.[12] $\overrightarrow{X_{i,t}}$ is a vector of firm-specific and time-variant control variables. $\epsilon_{i,t}$ is the error term.

3.4.2. Data

The sample we use for DiD regressions, contains data on private German firms. It is based on data from Hoppenstedt GmbH[13], a commercial business data provider for German firms. For sample construction, we use financial and non-financial data from their online database, which contains data on the majority of German firms. An overview of the sample construction process can be found in Table 3.1.

We start with all firms for which financial statements are available and drop financial firms

[12] In the following, we show that results are robust to removing the treatment year (2011) from the sample.
[13] See `www.bilanzen.de` for further details.

such as banks and insurance firms from the sample. The assignment to treatment and control group in our DiD identification strategy is based on the fulfillment of two out of three size criteria: total assets with a threshold at €4.84m, total sales with a threshold at €9.68m, and average number of employees with a threshold at 50. We check each of the three criteria for firm-year observations in 2011. Histograms showing the distribution of the assignment variables at this point of the sample construction process (Step 5 in Table 3.1) can be found in Appendix C.

Firms that exceed the thresholds for at least two criteria are assigned to the treatment group. Firms that are beneath the thresholds for at least two criteria are assigned to the control group. Due to data constraints we only keep firms for which the assignment into the treatment and control group is clear, i.e., information regarding at least two of the above criteria is available. Finally, we drop firms with only partial data coverage from 2009 to 2013.

To alleviate concerns that size differences would bias our findings, we balance treatment and control groups using nearest-neighbor matching as presented by Abadie et al. (2004). As a result of size criteria and data availability, we face a limited number of small (control) firms available for matching. Therefore we decide to reverse the matching procedure in order to find a comparable larger (treatment) firm to each smaller (control) firm. For each control firm we find a nearest neighbor in the group of treatment firms by matching on size in terms of totals assets in 2011. Additionally, we require exact industry-matching based on the Fama/French ten industries classification. We match with replacement. The final sample covers 1,420 firm-year observations related to 284 firms between 2009 and 2013.

Because the sample is based on private firms, we rely on book leverage. Thus, LEVERAGE is defined as total debt divided by total debt plus the book value of equity. Several control variables are included in the DiD analysis. For each firm, we compute information on ROA (return on assets), defined as net income divided by total assets, SIZE, defined as the natural logarithm of total assets, and TANGIBILITY, defined as property, plant and equipment divided by total assets. Finally, we base firm, year and industry-year fixed effects on firm ids, year dummies and Fama/French ten industries classification,

Table 3.1.: Sample generation process.

Step	Description	N	Firms	*treated*	*control*
Panel A: General data preparation and cleaning					
1	All private and public German firms from Hoppenstedt with at least one financial statement for the years 2008 and after.	249,950	24,298	-	-
2	We drop firm-year observations corresponding to financial statements before the year 2006. This is because data can only be downloaded as a whole from Hoppenstedt, i.e., all available firm financial statements at once.	174,736	24,298	-	-
3	We drop double firm-year observations to balance the panel, e.g., income statement provided according to two different methodologies.	166,654	24,298	-	-
4	We drop financial firm observations, i.e., Fama/French industries 45-48 and firms' observations with missing industry classification.	143,796	20,788	-	-
Panel B: Sample construction					
5	We drop firm observations for which a clear assignment to the treatment and control group is not possible, i.e., at least two out of three assignment variables are missing.	103,098	13,187	*12,846*	*341*
6	We drop firm observations for which dependent and independent variables are not fully available over the 2009 to 2013 period.	45,045	9,009	*8,867*	*142*
7	We perform nearest-neighbor matching by matching on size and industry based on the Fama/French ten industries classification.	1,420	284	*142*	*142*

Treated firms are medium-sized German firms while control firms are size- and industry-matched small-sized German firms. Medium-sized German firms are firms that meet at least two of the following criteria in the respective previous fiscal year: total assets greater than €4.84m, total sales greater than €9.68m and average number of employees greater than 50.

Table 3.2.: Summary statistics.

Variable	N	Mean	SD	P25%	Median	P75%
LEVERAGE	1,420	0.52	0.34	0.21	0.48	0.79
ROA	1,420	0.02	0.15	-0.01	0.02	0.09
SIZE	1,420	16.58	1.44	15.34	16.01	17.74
TOTAL ASSETS	1,420	56.90	142.00	4.60	8.96	50.60
TANGIBILITY	1,420	0.21	0.27	0.01	0.07	0.33
GROSS INVESTMENT	1,380	-0.003	0.064	-0.017	-0.001	0.005
NET INVESTMENT	1,345	0.045	0.080	0.002	0.020	0.058
INTEREST	1,135	0.04	0.06	0.01	0.03	0.05

We report TOTAL ASSETS (in € m) in addition to SIZE for better understanding of sample firm size. SIZE is defined as the natural logarithm of total assets. High values of SIZE result from the fact that German firms are considered small as long as they do not meet more than one of the following criteria in the respective previous fiscal year: total assets greater than €4.84m, total sales greater than €9.68m and average number of employees greater than 50. A description of all variables can be found in Appendix B.

respectively.

We winsorize variables at the 1% and the 99% levels to mitigate concerns related to outliers. Detailed definitions of all variables and their sources are summarized in Appendix B. Descriptive statistics can be found in Table 3.2. We report TOTAL ASSETS (in € m) in addition to SIZE for better understanding of sample firm size. High values of TOTAL ASSETS result from the fact that German firms are still considered small as long as they do not meet more than one of the following criteria in the respective previous fiscal year: total assets greater than €4.84m, total sales greater than €9.68m and average number of employees greater than 50.[14]

Table 3.3 presents descriptive statistics before and after nearest neighbor matching. We report t-statistics for the null hypothesis of equal means and normalized differences as proposed by Imbens and Wooldridge (2009). After size and exact industry-matching, we observe reduced t-statistics and absolute normalized differences below or equal to the maximum value of 0.25 suggested by Imbens and Wooldridge (2009). We conclude that our sample presents sufficient balance between treatment and control groups for our DiD analyses.

[14] In the following, we show that our main results are robust to a restriction of firm size to smaller treatment and control firms.

Table 3.3.: Balancing of treatment and control groups.

Panel A: Main sample

	Before matching				After matching			
Variable	Mean (treated)	Mean (unmatched control)	t-test	Normalized difference	Mean (treated)	Mean (matched control)	t-test	Normalized difference
LEVERAGE	0.57	0.46	10.57	0.25	0.58	0.46	0.00	0.24
ROA	0.03	0.00	11.63	0.22	0.05	0.00	6.43	0.24
SIZE	17.57	16.59	18.98	0.49	16.58	16.59	-0.13	0.00
TOTAL ASSETS	137.00	60.10	5.93	0.20	53.80	60.10	-0.84	-0.03
TANGIBILITY	0.29	0.16	13.37	0.37	0.25	0.16	6.54	0.25

Panel B: Restricted sample

	Before matching				After matching			
Variable	Mean (treated)	Mean (unmatched control)	t-test	Normalized difference	Mean (treated)	Mean (matched control)	t-test	Normalized difference
LEVERAGE	0.57	0.46	10.57	0.25	0.61	0.47	6.24	0.28
ROA	0.03	0.00	11.63	0.22	-0.02	0.06	-7.39	-0.33
SIZE	17.57	16.59	18.98	0.49	15.78	15.86	-1.67	-0.07
TOTAL ASSETS	137.00	60.10	5.93	0.20	10.70	10.60	0.15	0.01
TANGIBILITY	0.29	0.16	13.37	0.37	0.15	0.19	-3.23	-0.14

We report t-statistics for the null hypothesis of equal means and normalized differences as proposed by Imbens and Wooldridge (2009) for our main sample in Panel A and our restricted sample in Panel B. Our restricted sample is restricted to firms with TOTAL ASSETS smaller than €50m to address potential bias from high values of TOTAL ASSETS in our main sample. After size and exact industry-matching, we observe, especially for SIZE (and TOTAL ASSETS), reduced t-statistics and absolute normalized differences below or equal to the maximum value of 0.25 suggested by Imbens and Wooldridge (2009). Treated firms are medium-sized German firms while control firms are size- and industry-matched small-sized German firms. Medium-sized German firms are firms that meet at least two of the following criteria in the respective previous fiscal year: total assets greater than €4.84m, total sales greater than €9.68m and average number of employees greater than 50. A description of all variables can be found in Appendix B.

3.5. Empirical results

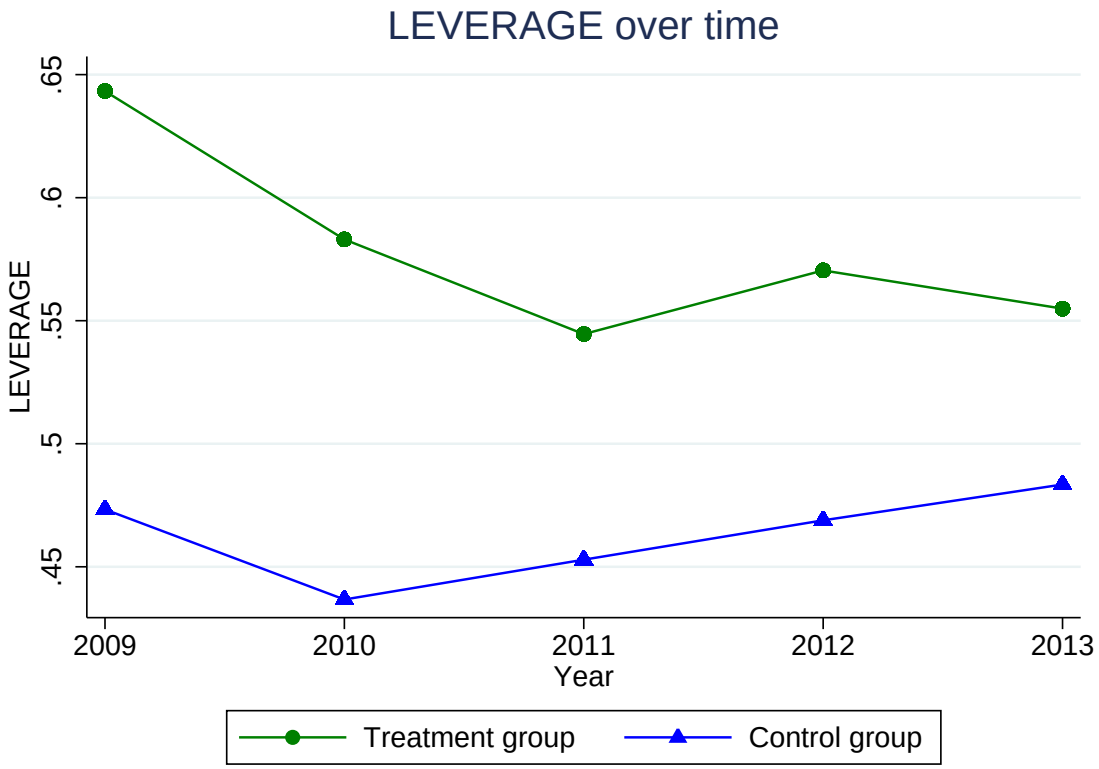
3.5.1. Main results

Before we formally investigate the effect of creditor protection on financial leverage, we present some graphical analysis. Figure 3.1 shows the development of financial leverage for the treatment group, i.e., medium-sized German firms and the control group, i.e., size and exact industry-matched small-sized German firms. By the year of ESUG's introduction, the treatment and control groups exhibit a declining parallel trend. Therefore, we conclude that the parallel trends assumption is not violated. Interestingly, we observe that in the two years following ESUG, treated firms keep their financial leverage constant while control firms seem to increase their financial leverage. In Figure 3.2, we show that this effect is likely to result from a relative increase of equity over debt in treated firms compared to a relative increase in debt relative to equity in control firms.

The main DiD analysis around the introduction of ESUG can be found in Table 3.4. TREATED distinguishes larger from smaller German firms. POST equals one in and after 2011, i.e., after ESUG was introduced. We choose time windows of plus/minus two years (2009 to 2013) and plus/minus one year (2010 to 2012) around the introduction of ESUG (2011). TREATED and POST are absorbed by firm and year fixed effects respectively. The interaction term between TREATED and POST is the main variable of interest.

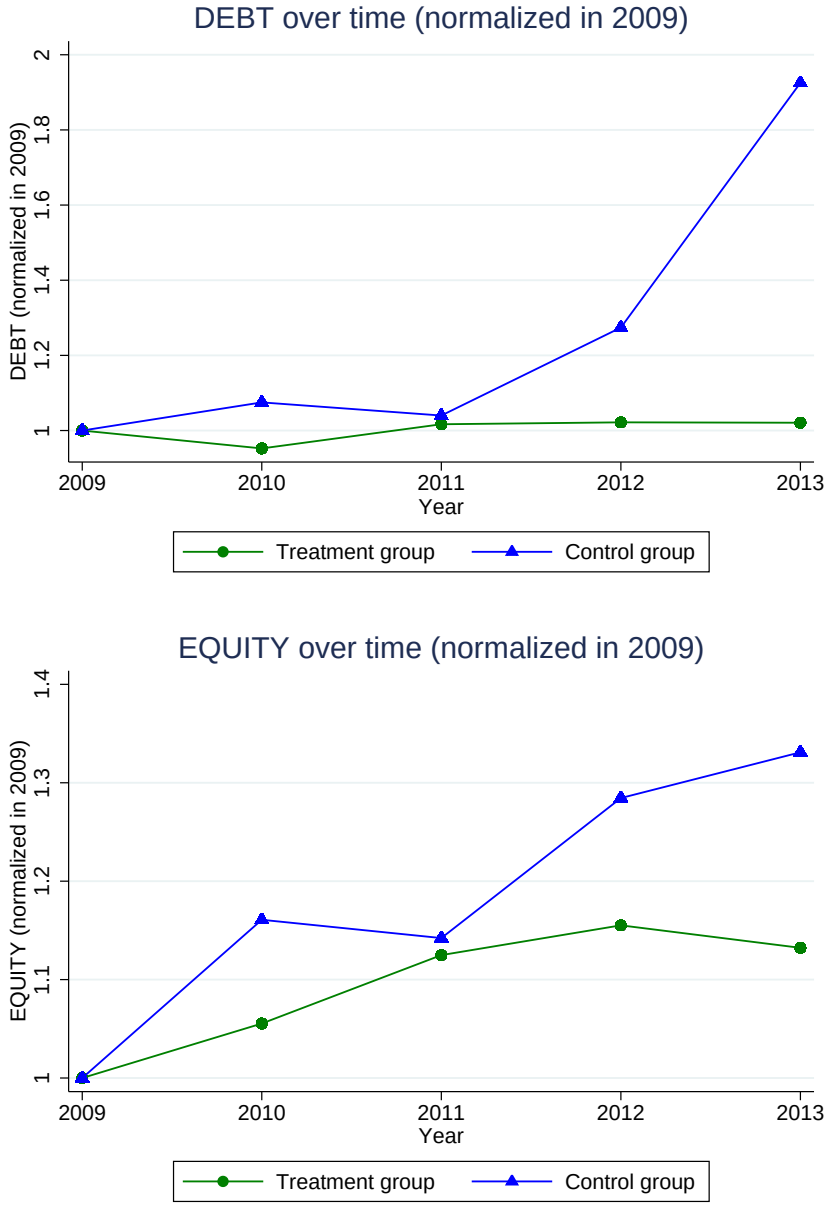
In all models, with or without control variables or irrespective of the inclusion of the treatment year, the coefficients for the interaction term are negative and statistically significant. The magnitude of the coefficient suggests that larger firms decreased their financial leverage by about five percentage points relative to smaller firms after ESUG was introduced. Thus, we conclude that ESUG induced a decrease in financial leverage in larger firms compared to smaller firms. In Appendix D we present results when we gradually vary different sets of firm, year and industry-year fixed effects. The respective coefficient for the interaction term remains negative, at a comparable magnitude, and statistically significant in all models.

Figure 3.1.: Development of mean financial leverage around ESUG (2011).



In order to work with yearly accounting data, we assume that ESUG was introduced during the accounting year 2011, with yearend dates from July 1, 2011, to June 30, 2012. The fiscal year 2011 thus encompasses ESUG's parliamentary discussion, its adoption, and its coming into effect. Treated firms are medium-sized German firms while control firms are size- and industry-matched small-sized German firms. Medium-sized German firms are firms that meet at least two of the following criteria in the respective previous fiscal year: total assets greater than €4.84m, total sales greater than €9.68m and average number of employees greater than 50. A description of all variables can be found in Appendix B.

Figure 3.2.: Development of mean debt and equity around ESUG (2011).



In order to work with yearly accounting data, we assume that ESUG was introduced during the accounting year 2011, with yearend dates from July 1, 2011, to June 30, 2012. The fiscal year 2011 thus encompasses ESUG's parliamentary discussion, its adoption, and its coming into effect. Treated firms are medium-sized German firms while control firms are size- and industry-matched small-sized German firms. Medium-sized German firms are firms that meet at least two of the following criteria in the respective previous fiscal year: total assets greater than €4.84m, total sales greater than €9.68m and average number of employees greater than 50. A description of all variables can be found in Appendix B.

Table 3.4.: Financial leverage: Difference-in-differences regressions with main sample.

Model	(1)	(2)	(3)	(4)	(5)
Reform window	[-2;+2]	[-1;+1]	[-2;+2]	[-1;+1]	[-2;+2]
Dep. variable:			LEVERAGE		
TREATED x POST	**-0.070*** (-2.824)**	**-0.050** (-2.264)**	**-0.058*** (-2.641)**	**-0.043** (-2.038)**	**-0.057** (-2.301)**
ROA			-0.488***	-0.328***	-0.522***
			(-6.475)	(-2.994)	(-5.777)
SIZE			0.086***	0.033	0.083***
			(2.745)	(0.955)	(2.842)
TANGIBILITY			0.075	0.090	0.070
			(0.943)	(0.733)	(0.757)
Constant	0.558***	0.510***	-0.876*	-0.046	-0.825*
	(55.701)	(69.661)	(-1.697)	(-0.082)	(-1.707)
Observations	1,420	852	1,420	852	1,136
Number of firms	284	284	284	284	284
Within-R^2	0.102	0.113	0.217	0.161	0.225
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes	Yes
Treatment Year	Yes	Yes	Yes	Yes	No

The table presents coefficients from difference-in-differences regressions. LEVERAGE is the dependent variable. The sample is restricted to observations in the time window around the introduction of ESUG (2011) presented in column titles. TREATED is a dummy variable set to one for treatment firms, and zero otherwise. Treated firms are medium-sized German firms while control firms are size- and industry-matched small-sized German firms. Medium-sized German firms are firms that meet at least two of the following criteria in the respective previous fiscal year: total assets greater than €4.84m, total sales greater than €9.68m and average number of employees greater than 50. POST is a dummy variable set to one in and after the introduction year of ESUG (2011). All models are firm, year and industry-year fixed effects regressions. T-statistics based on Huber/White robust standard errors clustered by firm are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A description of all variables can be found in Appendix B.

3.5.2. Robustness tests

In the following, we perform robustness tests in order to verify the validity of our main results. We investigate whether the decrease in financial leverage results from a reduction in short-term or long-term leverage. We hypothesize that our results are driven by a reduction of SHORT-TERM LEVERAGE and present results in Table 3.5. SHORT-TERM LEVERAGE is defined as short-term debt divided by total debt plus book value of equity. We find that the coefficients for the interaction term are negative, of a similar magnitude, and statistically significant with exception of models (2) and (4). Thus, we conclude that the decrease in financial leverage induced by ESUG results from a decrease in short-term leverage.

We further test for three important aspects in the context of DiD analyses: anticipation, pre-event trends and falsification. First, German firms and their creditors were not able to anticipate ESUG. Even though there have been preliminary discussions regarding ESUG before 2011, it was not clear when the reform would come into effect or what the exact details would be. Particularly, discussions about applicable size thresholds remained abstract until December 2011, when ESUG was passed by the German Parliament (Verlag C. H. Beck, 2016), making anticipation by firms and creditors unlikely.

Second, the pre-event parallel trend of treatment and control group is crucial for the validity of our DiD results. To assess this, and in addition to the graphical analysis in Figure 3.1, we analyze the time dynamics around the introduction of ESUG. Table 3.6 shows the corresponding results. Here, year and industry-year fixed effects are based on respective manually constructed dummies. In accordance with the parallel trends assumption, we observe no significant loadings on year dummies and interaction terms before the introduction of ESUG in 2011. As expected, we only observe a significant impact after the introduction of ESUG.

Third, we verify the validity of our DiD design by successively replacing our dependent variable with one of the chosen control variables. Intuition holds, that control variables should remain unaffected by the enactment of ESUG. Table 3.7 presents the respective results. Consistent with our predictions, we do not observe any significant impact of ESUG

Table 3.5.: Short-term leverage: Difference-in-differences regressions with main sample.

Model	(1)	(2)	(3)	(4)	(5)
Reform window	[-2;+2]	[-1;+1]	[-2;+2]	[-1;+1]	[-2;+2]
Dep. variable:	SHORT-TERM LEVERAGE				
TREATED x POST	**-0.055****	**-0.022**	**-0.048****	**-0.017**	**-0.053****
	(-2.529)	**(-1.034)**	**(-2.419)**	**(-0.795)**	**(-2.412)**
ROA			-0.395***	-0.225***	-0.421***
			(-6.258)	(-2.720)	(-5.637)
SIZE			0.066**	-0.005	0.064**
			(2.508)	(-0.131)	(2.544)
TANGIBILITY			-0.185**	-0.055	-0.215**
			(-2.141)	(-0.454)	(-2.188)
Constant	0.441***	0.384***	-0.613	0.476	-0.562
	(44.831)	(54.868)	(-1.406)	(0.831)	(-1.357)
Observations	1,380	828	1,380	828	1,104
Number of firms	276	276	276	276	276
Within-R^2	0.0788	0.0669	0.158	0.0908	0.171
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes	Yes
Treatment Year	Yes	Yes	Yes	Yes	No

The table presents coefficients from difference-in-differences regressions. SHORT-TERM LEVERAGE is the dependent variable. The sample is restricted to observations in the time window around the introduction of ESUG (2011) presented in column titles. TREATED is a dummy variable set to one for treatment firms, and zero otherwise. Treated firms are medium-sized German firms while control firms are size- and industry-matched small-sized German firms. Medium-sized German firms are firms that meet at least two of the following criteria in the respective previous fiscal year: total assets greater than €4.84m, total sales greater than €9.68m and average number of employees greater than 50. POST is a dummy variable set to one in and after the introduction year of ESUG (2011). All models are firm, year and industry-year fixed effects regressions. T-statistics based on Huber/White robust standard errors clustered by firm are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A description of all variables can be found in Appendix B.

on our chosen control variables.

Furthermore, we address potential threshold manipulation by focusing our main sample on high-growth firms. High-growth firms should have more difficulties to precisely manipulate ESUG's size thresholds.[15] Corresponding results are presented in Table 3.8. High-growth firms are identified based on their sales growth over the two pre-event years (2009 & 2010). Firms with below median sales growth are excluded from the sample. Again, the coefficients for the interaction term are negative and statistically significant.

Interestingly, results from models (3) and (4) suggest that larger firms amongst high-growth sample reduced their financial leverage by about nine percentage points following ESUG. This is consistent with the view that high-growth firms rely on higher financial leverage and thus bear a higher insolvency risk. Therefore, they should show a more pronounced reaction to ESUG. In unreported descriptive statistics, we find that treated firms from the high-growth sample have higher mean values of financial leverage than treated firms from the main sample.

To address potential bias from high values of TOTAL ASSETS in our main sample, we conduct two robustness checks with respect to firm size. First, we use propensity score matching with caliper restriction instead of nearest neighbor matching. This approach leads to similar values of TOTAL ASSETS and to similar results as the nearest neighbor matching. Therefore, we do not report these results and do not further pursue this approach.

Second, we restrict our main sample to firms with TOTAL ASSETS smaller than €50m in the introduction year of ESUG (2011).[16] Panel B of Table 3.3 presents descriptive statistics before and after nearest neighbor matching. Our restricted sample presents a mean value of TOTAL ASSETS that is about six times smaller than the corresponding mean in our main sample. Again, we conclude that our restricted sample presents sufficient balance between treatment and control groups and verify that the parallel trends assumption holds. We report results for the respective DiD analysis around the introduction of ESUG

[15] Firms that meet at least two of the following criteria in the respective previous fiscal year are considered to be at least medium-sized: total assets greater than €4.84m, total sales greater than €9.68m, and average number of employees greater than 50.

[16] Equal to about ten times the total assets threshold of €4.84m.

Table 3.6.: Financial leverage: Anticipation and pre-event trends.

Model	(1)	(2)
Reform window	[-2;+2]	[-2;+2]
Dep. variable:	LEVERAGE	
Bef2	omitted	omitted
	-	-
Bef1	0.007	0.016
	(0.342)	(0.674)
T0	0.028	0.061*
	(0.815)	(1.788)
Aft1	-0.008	0.017
	(-0.199)	(0.434)
Aft2	-0.023	0.019
	(-0.685)	(0.592)
TREATED x Bef2		**omitted**
		-
TREATED x Bef1		**-0.018**
		(-0.929)
TREATED x T0		**-0.066*** **
		(-2.767)
TREATED x Aft1		**-0.050** **
		(-2.010)
TREATED x Aft2		**-0.083*** **
		(-2.652)
ROA	-0.496***	-0.489***
	(-6.321)	(-6.498)
SIZE	0.087***	0.086***
	(2.738)	(2.714)
TANGIBILITY	0.083	0.068
	(1.037)	(0.849)
Constant	-0.892*	-0.869*
	(-1.706)	(-1.669)
Observations	1,420	1,420
Number of firms	284	284
Within-R^2	0.207	0.218
Firm FE	Yes	Yes
Year FE	Yes	Yes
Industry-Year FE	Yes	Yes

The table presents coefficients from difference-in-differences regressions. LEVERAGE is the dependent variable. The sample is restricted to observations in the time window around the introduction of ESUG (2011) presented in column titles. TREATED is a dummy variable set to one for treatment firms, and zero otherwise. Treated firms are medium-sized German firms while control firms are size- and industry-matched small-sized German firms. Medium-sized German firms are firms that meet at least two of the following criteria in the respective previous fiscal year: total assets greater than €4.84m, total sales greater than €9.68m and average number of employees greater than 50. Instead of a POST dummy, time dummies from two years before the introduction of ESUG to two years thereafter are used. Year and industry-year fixed effects are based on respective manually constructed dummies. T-statistics based on Huber/White robust standard errors clustered by firm are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A description of all variables can be found in Appendix B.

Table 3.7.: Financial leverage: Falsification tests.

Model	(1)	(2)	(3)	(4)	(5)	(6)
Reform window	[-2;+2]	[-1;+1]	[-2;+2]	[-1;+1]	[-2;+2]	[-1;+1]
Dep. variable:	ROA		SIZE		TANGIBILITY	
TREATED x POST	**0.005**	**0.016**	**0.003**	**0.029**	**-0.007**	**0.001**
	(0.395)	**(0.961)**	**(0.070)**	**(0.614)**	**(-0.780)**	**(0.163)**
LEVERAGE	-0.227***	-0.152***	0.302**	0.107	0.014	0.014
	(-6.009)	(-2.802)	(2.460)	(0.850)	(0.889)	(0.718)
ROA			0.393***	0.230**	-0.059***	-0.053
			(3.786)	(2.218)	(-3.204)	(-1.642)
SIZE	0.052***	0.033			-0.008	-0.002
	(3.464)	(1.467)			(-0.620)	(-0.145)
TANGIBILITY	-0.144***	-0.161*	-0.143	-0.048		
	(-3.181)	(-1.841)	(-0.570)	(-0.141)		
Constant	-0.693***	-0.407	16.429***	16.515***	0.333	0.239
	(-2.844)	(-1.102)	(180.192)	(170.693)	(1.566)	(0.914)
Observations	1,420	852	1,420	852	1,420	852
Number of firms	284	284	284	284	284	284
Within-R^2	0.054	0.058	0.114	0.047	0.203	0.108
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes	Yes	Yes

The table presents coefficients from difference-in-differences regressions. In models (1) and (2) the dependent variable is ROA, in models (3) and (4) the dependent variable is SIZE and in models (5) and (6) the dependent variable is TANGIBILITY. The sample is restricted to observations in the time window around the introduction of ESUG (2011) presented in column titles. TREATED is a dummy variable set to one for treatment firms, and zero otherwise. Treated firms are medium-sized German firms while control firms are size- and industry-matched small-sized German firms. Medium-sized German firms are firms that meet at least two of the following criteria in the respective previous fiscal year: total assets greater than €4.84m, total sales greater than €9.68m and average number of employees greater than 50. POST is a dummy variable set to one in and after the introduction year of ESUG (2011). All models are firm, year and industry-year fixed effects regressions. T-statistics based on Huber/White robust standard errors clustered by firm are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A description of all variables can be found in Appendix B.

Table 3.8.: Financial leverage: Difference-in-differences regressions with high-growth sample.

Model	(1)	(2)	(3)	(4)	(5)
Reform window	[-2;+2]	[-1;+1]	[-2;+2]	[-1;+1]	[-2;+2]
Dep. variable:			LEVERAGE		
TREATED x POST	**-0.136*** (-3.781)**	**-0.085*** (-2.854)**	**-0.094*** (-3.361)**	**-0.061** (-2.223)**	**-0.094*** (-3.223)**
ROA			-0.687***	-0.503***	-0.716***
			(-7.480)	(-5.912)	(-6.078)
SIZE			0.095***	0.049*	0.092***
			(2.750)	(1.670)	(2.740)
TANGIBILITY			0.094	0.036	0.109
			(1.131)	(0.314)	(1.071)
Constant	0.560***	0.496***	-1.058*	-0.317	-1.009*
	(37.101)	(51.343)	(-1.847)	(-0.654)	(-1.815)
Observations	725	435	725	435	580
Number of firms	145	145	145	145	145
Within-R^2	0.211	0.226	0.410	0.335	0.405
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes	Yes
Treatment Year	Yes	Yes	Yes	Yes	No

The table presents coefficients from difference-in-differences regressions. LEVERAGE is the dependent variable. The sample is restricted to observations in the time window around the introduction of ESUG (2011) presented in column titles. We further restrict the sample to high-growth firms. High-growth firms are identified based on their sales growth over the two pre-event years (2009 & 2010) and firms with below median sales growth are excluded from the sample. TREATED is a dummy variable set to one for treatment firms, and zero otherwise. Treated firms are medium-sized German firms while control firms are size- and industry-matched small-sized German firms. Medium-sized German firms are firms that meet at least two of the following criteria in the respective previous fiscal year: total assets greater than €4.84m, total sales greater than €9.68m and average number of employees greater than 50. POST is a dummy variable set to one in and after the introduction year of ESUG (2011). All models are firm, year and industry-year fixed effects regressions. T-statistics based on Huber/White robust standard errors clustered by firm are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A description of all variables can be found in Appendix B.

in Table 3.9. Similar to our main results, coefficients for the interaction terms are positive, of a similar magnitude, and statistically significant. Thus, we conclude that results from our main analysis are robust with respect to high values of TOTAL ASSETS.

To further validate our results we perform two placebo tests. First, we assume that our results are independent from the specified event window. We select a hypothetical alternative time window ranging from 2004 to 2008 (which ends just before the main event window) and assume the introduction of ESUG in 2006. We verify that the parallel trends assumption is not violated. We run our analyses over the alternative time window and present the results in models (1) and (2) of Table 3.10. The coefficients for the interaction terms are all positive and statistically insignificant. Therefore, we conclude that results from our main DiD analysis are not independent from the chosen event window.

Second, we assume that our results are independent from the chosen size criteria.[17] We choose hypothetical alternative size criteria that correspond to the threshold between large and medium-sized German firms.[18] We restrict the regression sample to firms within ±20% of the size threshold of €19.25m in order to obtain a restricted sample with comparable size to our main sample. We make sure that the parallel trends assumption is not violated. Again, we perform similar analyses using the alternative size criteria and present the results in models (3) and (4) of Table 3.10. In contrast to the main analysis, the coefficients for the interaction terms are positive and statistically significant. We conclude that the results from our main DiD analysis are not independent from the applicable size threshold.[19]

3.5.3. Further implications

Besides financial leverage, we also investigate the impact of increased creditor protection on the cost of debt and its use. We investigate if the decrease in financial leverage by

[17] Total assets greater than €4.84m, total sales greater than €9.68m and average number of employees greater than 50.

[18] According to the German Commercial Code, firms that meet at least two of the following criteria in the respective previous fiscal year are considered to be large-sized: total assets greater than €19.25m, total sales greater than €38.5m, and average number of employees greater than 250.

[19] Many papers that rely upon events like or similar to a legal reform with size threshold further validate their results from difference-in-difference analyses with a regression discontinuity design (RDD) (Imbens and Lemieux, 2008) around the threshold (e.g., Iliev, 2010; Black and Kim, 2012). We investigate the applicability of RDD to the case of ESUG and conclude that ESUG's setting which requires the fulfillment of two out of three size criteria (OR condition) is not suited for RDD (Trochim, 1990; Capelleri and Trochim, 2015).

Table 3.9.: Financial leverage: Difference-in-differences regressions with restricted sample.

Model	(1)	(2)	(3)	(4)	(5)
Reform window	[-2;+2]	[-1;+1]	[-2;+2]	[-1;+1]	[-2;+2]
Dep. variable:			LEVERAGE		
TREATED x POST	**-0.073****	**-0.053***	**-0.065****	**-0.047***	**-0.056***
	(-2.330)	**(-1.889)**	**(-2.288)**	**(-1.715)**	**(-1.746)**
ROA			-0.450***	-0.241**	-0.518***
			(-5.336)	(-2.152)	(-4.875)
SIZE			0.041	-0.016	0.036
			(1.045)	(-0.308)	(0.977)
TANGIBILITY			-0.144	-0.060	-0.167
			(-1.197)	(-0.348)	(-1.222)
Constant	0.591***	0.527***	-0.026	0.805	0.049
	(46.693)	(56.319)	(-0.042)	(0.964)	(0.083)
Observations	1,060	636	1,060	636	848
Number of firms	212	212	212	212	212
Within-R^2	0.135	0.154	0.218	0.178	0.237
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes	Yes
Treatment Year	Yes	Yes	Yes	Yes	No

The table presents coefficients from difference-in-differences regressions. LEVERAGE is the dependent variable. The sample is restricted to observations in the time window around the introduction of ESUG (2011) presented in column titles. We further restrict the sample to firms with TOTAL ASSETS smaller than €50m in the introduction year of ESUG (2011). TREATED is a dummy variable set to one for treatment firms, and zero otherwise. Treated firms are medium-sized German firms while control firms are size- and industry-matched small-sized German firms. Medium-sized German firms are firms that meet at least two of the following criteria in the respective previous fiscal year: total assets greater than €4.84m, total sales greater than €9.68m and average number of employees greater than 50. POST is a dummy variable set to one in and after the introduction year of ESUG (2011). All models are firm, year and industry-year fixed effects regressions. T-statistics based on Huber/White robust standard errors clustered by firm are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A description of all variables can be found in Appendix B.

Table 3.10.: Financial leverage: Placebo tests.

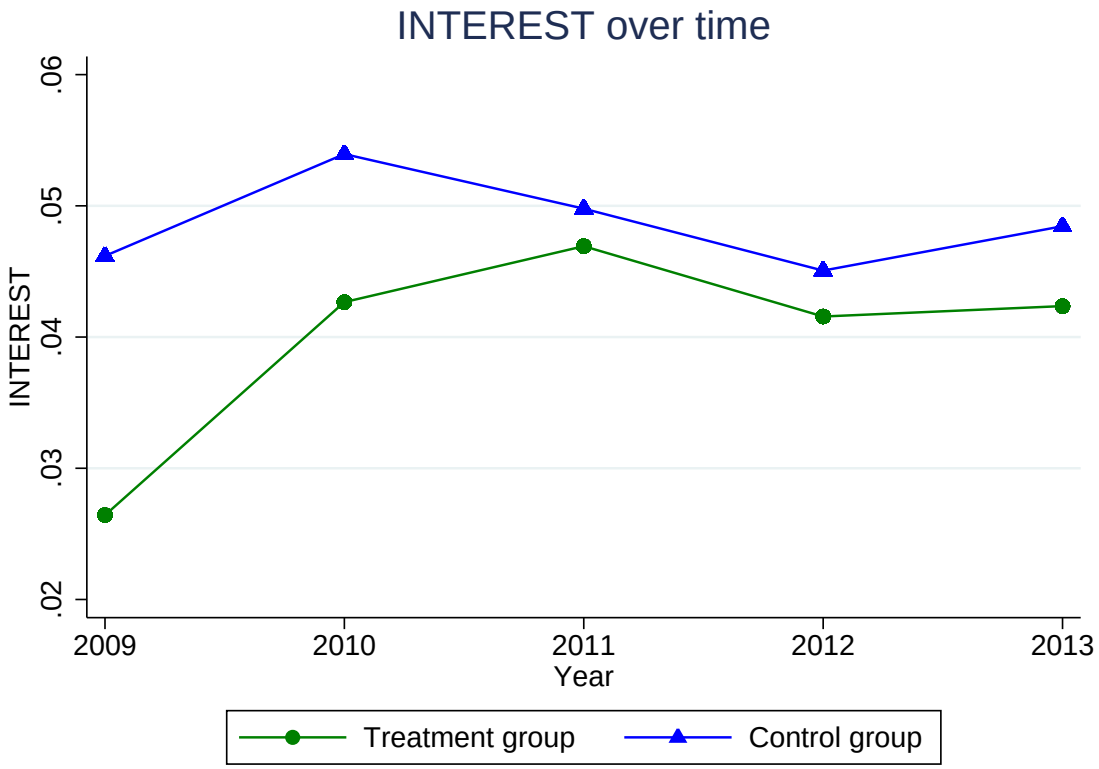
Model	(1)	(2)	(3)	(4)
Placebo test	Alternative time window		Alternative size criteria	
Reform window	[-2;+2]	[-1;+1]	[-2;+2]	[-1;+1]
Dep. variable:	LEVERAGE		LEVERAGE	
TREATED x POST	**0.031**	**0.013**	**0.125*****	**0.114*****
	(1.628)	**(0.779)**	**(7.491)**	**(8.027)**
ROA	-0.380***	-0.350***	-0.814***	-0.980***
	(-5.437)	(-3.301)	(-7.811)	(-8.082)
SIZE	0.045*	0.040	0.212***	0.329***
	(1.752)	(1.174)	(3.996)	(4.754)
TANGIBILITY	0.216***	0.251**	0.251***	0.580***
	(3.311)	(2.586)	(2.608)	(3.984)
Constant	-0.208	-0.166	-3.100***	-5.132***
	(-0.503)	(-0.299)	(-3.495)	(-4.364)
Observations	1,500	900	1,310	786
Number of firms	300	300	262	262
Within-R^2	0.153	0.129	0.433	0.494
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes

The table presents coefficients from difference-in-differences regressions. LEVERAGE is the dependent variable. The sample is restricted to observations in the time window around the (hypothetical) introduction of ESUG presented in column titles. In models (1) and (2) we set the time window to an alternative time window from 2004 to 2008 where 2006 is the year of the hypothetical introduction of ESUG. TREATED is a dummy variable set to one for treatment firms, and zero otherwise. Treated firms are medium-sized German firms while control firms are size- and industry-matched small-sized German firms. Medium-sized German firms are firms that meet at least two of the following criteria in the respective previous fiscal year: total assets greater than €4.84m, total sales greater than €9.68m and average number of employees greater than 50. POST is a dummy variable set to one in and after the hypothetical treatment year (2006). In models (3) and (4) we choose alternative size criteria for the assignment to treatment. TREATED is a dummy variable set to one for treatment firms, and zero otherwise. Treated firms are large-sized German firms while control firms are size and industry-matched medium-sized German firms. Large-sized German firms are firms that meet at least two of the following criteria in the respective previous fiscal year: total assets greater than €19.25m, total sales greater than €38.5m, and average number of employees greater than 250. POST is a dummy variable set to one in and after the introduction year of ESUG (2011). We restrict the regression sample to firms within ±20% of the size threshold of €19.25m in order to obtain a sample with comparable size to our main sample. All models are firm, year and industry-year fixed effects regressions. T-statistics based on Huber/White robust standard errors clustered by firm are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A description of all variables can be found in Appendix B.

larger German firms following ESUG might also have resulted from reduced agency cost and thus cost of debt. We test whether small-sized German firms benefited from lower INTEREST rates after ESUG and present results in Table 3.11. Figure 3.3 shows that the parallel trends assumption is not violated. INTEREST is defined as interest expenses divided by total debt. In models (3) and (4) we introduce an alternative set of control variables consisting of SIZE, LEVERAGE and CASHFLOW. Here, CASHFLOW is defined as EBITDA over the change in net property, plant and equipment versus the previous year. We find that the coefficients for the interaction term are positive and statistically significant with exception of models (2) and (4). Thus, we conclude that ESUG did improve the relative cost of debt of untreated firms compared to treated firms. Consistent with the notion that better creditor protection decreases the cost of debt, Figure 3.3 suggests a decrease in average interest rates around 2011. However, our results suggest that, as creditors may become protected too well, firms may actually forgo available supply of debt.

Finally, we expect, as larger firms forgo opportunities for debt financing, they will reduce investment, while the opposite applies to smaller firms. Hence, we expect smaller German firms to increase investments compared to larger German firms. Empirically, we look at both the GROSS and NET INVESTMENT ratio, defined as the difference in gross or net property, plant and equipment versus the previous year divided by total debt plus book value of equity in the respective year. Figure 3.4 shows the development of GROSS and NET INVESTMENT ratios around the introduction of ESUG. The graphs suggest that the parallel trends assumption is not violated. GROSS and NET INVESTMENT are respectively defined as the difference in gross and net property, plant and equipment versus the previous year divided by total debt plus book value of equity in the respective year. We report results for the respective DiD analysis around the introduction of ESUG in Table 3.12. Again, coefficients for the interaction terms are negative and statistically significant with exception of model (4). We conclude that, as larger firms refrained from borrowing, they had to cut investments relative to smaller firms. These smaller firms may have benefited from the introduction of a preliminary creditors' committee, as it may have

Figure 3.3.: Development of mean interest around ESUG (2011).



In order to work with yearly accounting data, we assume that ESUG was introduced during the accounting year 2011, with yearend dates from July 1, 2011, to June 30, 2012. The fiscal year 2011 thus encompasses ESUG's parliamentary discussion, its adoption, and its coming into effect. Treated firms are medium-sized German firms while control firms are size- and industry-matched small-sized German firms. Medium-sized German firms are firms that meet at least two of the following criteria in the respective previous fiscal year: total assets greater than €4.84m, total sales greater than €9.68m and average number of employees greater than 50. A description of all variables can be found in Appendix B.

Table 3.11.: Interest: Difference-in-differences regressions.

Model	(1)	(2)	(3)	(4)
Reform window	[-2;+2]	[-1;+1]	[-2;+2]	[-1;+1]
Dep. variable:		INTEREST		
TREATED x POST	**0.010***	**0.007**	**0.014****	**0.007**
	(1.726)	**(1.025)**	**(2.373)**	**(1.031)**
ROA	0.006	0.008		
	(0.404)	(0.364)		
SIZE	-0.013**	-0.016	-0.008	-0.026
	(-2.305)	(-1.566)	(-1.025)	(-1.555)
TANGIBILITY	-0.040	-0.039		
	(-1.135)	(-0.941)		
LEVERAGE			-0.066***	-0.087***
			(-3.293)	(-2.842)
CASHFLOW			0.000	0.000
			(1.549)	(0.520)
Constant	0.272***	0.328*	0.207	0.539*
	(2.703)	(1.867)	(1.627)	(1.875)
Observations	1,135	681	955	573
Number of firms	227	227	191	191
Within-R^2	0.135	0.0662	0.172	0.177
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes

The table presents coefficients from difference-in-differences regressions. INTEREST is the dependent variable. The sample is restricted to observations in the time window around the introduction of ESUG (2011) presented in column titles. TREATED is a dummy variable set to one for treatment firms, and zero otherwise. Treated firms are medium-sized German firms while control firms are size- and industry-matched small-sized German firms. Medium-sized German firms are firms that meet at least two of the following criteria in the respective previous fiscal year: total assets greater than €4.84, total sales greater than €9.68m and average number of employees greater than 50. POST is a dummy variable set to one in and after the introduction year of ESUG (2011). All models are firm, year and industry-year fixed effects regressions. T-statistics based on Huber/White robust standard errors clustered by firm are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A description of all variables can be found in Appendix B.

increased available debt supply because demand by larger firms has decreased.

3.6. Conclusion

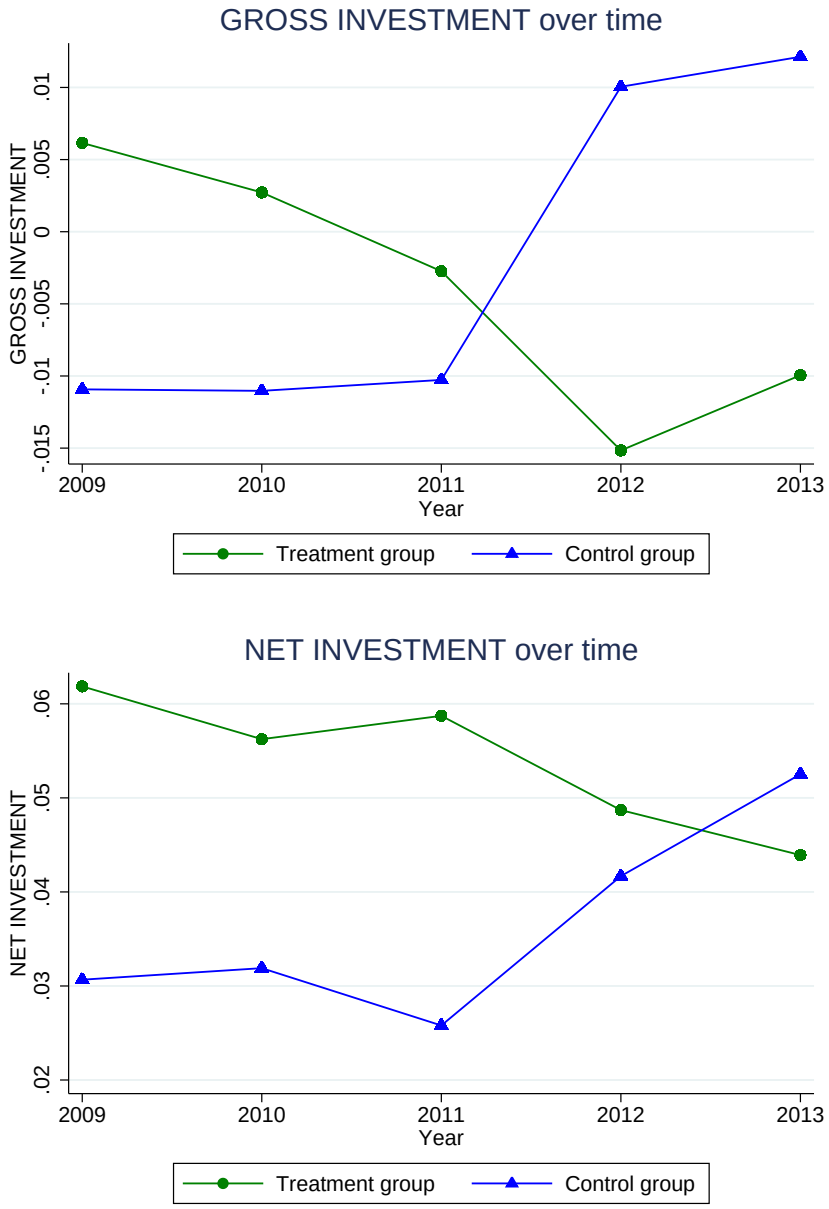
In this paper, we exploit the exogenous passing and enactment of the latest reform to German insolvency law ("Gesetz zur weiteren Erleichterung der Sanierung von Unternehmen", short "ESUG") to show that a shift in the balance of power from shareholders to creditors can actually negatively affect firm borrowing. Specifically, we posit that, when filing for insolvency in a strong creditor protection regime like Germany, the firm and shareholders may fear the extent of power attributed to creditors. Therefore, firms may be reluctant to borrow in the first place.

ESUG mandated that insolvent firms that are at least medium-sized have to appoint a preliminary creditors' committee, which exerts strong influence on the appointment of the insolvency administrator. This rule does not apply to smaller firms and there is anecdotal evidence suggesting that smaller firms and insolvency courts refrain from complying voluntarily. As there is no other rule related to ESUG that applies to the same size threshold, we can perform a difference-in-differences analysis and compare the development of financial leverage of larger and smaller firms around the size threshold.

After treatment, we observe that firms above the size threshold reduced financial leverage relative to their counterparts by about five percentage points. Further analysis reveals that the reduction in financial leverage can be explained by a shift from debt to equity, and more specifically by the reduction of short-term leverage. The results are robust to: (i) the inclusion of different sets of firm, year, and industry-year fixed effects; (ii) robustness tests addressing threshold manipulation and sample firm size; (iii) placebo tests where we rely on an alternative time window and different size criteria. We also show that the parallel trends assumption is not violated.

Finally, we find evidence that smaller firms benefit from lower average interest rates after the introduction of ESUG. We also show that larger firms reduce investment following ESUG. In contrast, smaller firms increase both leverage and investment in the aftermath of ESUG. Overall, the evidence is consistent with the view that greater creditor protection

Figure 3.4.: Development of mean gross and net investment around ESUG (2011).



In order to work with yearly accounting data, we assume that ESUG was introduced during the accounting year 2011, with yearend dates from July 1, 2011, to June 30, 2012. The fiscal year 2011 thus encompasses ESUG's parliamentary discussion, its adoption, and its coming into effect. Treated firms are medium-sized German firms while control firms are size- and industry-matched small-sized German firms. Medium-sized German firms are firms that meet at least two of the following criteria in the respective previous fiscal year: total assets greater than €4.84m, total sales greater than €9.68m and average number of employees greater than 50. A description of all variables can be found in Appendix B.

Table 3.12.: Investment: Difference-in-differences regressions.

Model	(1)	(2)	(3)	(4)
Reform window	[-2;+2]	[-1;+1]	[-2;+2]	[-1;+1]
Dep. variable:	GROSS INVESTMENT		NET INVESTMENT	
TREATED x POST	**-0.027*** (-3.760)**	**-0.025*** (-2.899)**	**-0.015* (-1.893)**	**-0.008 (-0.912)**
ROA	0.037***	0.044	0.019	0.051*
	(2.727)	(1.501)	(1.096)	(1.919)
SIZE	0.031***	0.049***	0.008	0.015
	(3.942)	(3.471)	(0.842)	(0.739)
TANGIBILITY	0.343***	0.513***	0.435***	0.589***
	(7.637)	(6.156)	(6.685)	(5.536)
Constant	-0.588***	-0.918***	-0.171	-0.329
	(-4.449)	(-3.888)	(-1.109)	(-0.969)
Observations	1,380	828	1,345	807
Number of firms	276	276	269	269
Within-R^2	0.220	0.303	0.224	0.297
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes

The table presents coefficients from difference-in-differences regressions. In models (1) and (2) GROSS INVESTMENT is the dependent variable. GROSS INVESTMENT is based on the difference in gross property, plant and equipment versus the previous year divided by total debt plus book value of equity in the respective year. In models (3) and (4) NET INVESTMENT is the dependent variable. NET INVESTMENT is based on the difference in net property, plant and equipment versus the previous year divided by total debt plus book value of equity in the respective year. The sample is restricted to observations in the time window around the introduction of ESUG (2011) presented in column titles. TREATED is a dummy variable set to one for treatment firms, and zero otherwise. Treated firms are medium-sized German firms while control firms are size- and industry-matched small-sized German firms. Medium-sized German firms are firms that meet at least two of the following criteria in the respective previous fiscal year: total assets greater than €4.84m, total sales greater than €9.68m and average number of employees greater than 50. POST is a dummy variable set to one in and after the introduction year of ESUG (2011). All models are firm, year and industry-year fixed effects regressions. T-statistics based on Huber/White robust standard errors clustered by firm are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A description of all variables can be found in Appendix B.

results in a more costly insolvency procedure from a shareholder perspective. To avoid further losses of control, firms try to avoid debt, which in turn hinders investment and ultimately firm growth. In contrast, smaller firms may have benefited from the introduction of a preliminary creditors' committee as it may have increased available debt supply because demand by larger firms has decreased.

This article has an important implication. Most of the literature on creditor protection argues that better creditor protection increases debt supply (e.g., La Porta et al., 1997, 1998; Levine, 1998, 1999; Djankov et al., 2007; La Porta et al., 2008). In contrast, we show that, even though creditor supply may increase due to lower adverse selection costs to creditors, firms may actually forgo debt capital because together with their shareholders they may fear the extent of creditor power when creditors are too well protected. Overall, the evidence suggests that there may be a optimal level of creditor protection, and that beyond a certain threshold, debt becomes too costly for shareholders, which is why they may become reluctant to borrow.

4. Creditors and Corporate Restructuring? Evidence from European Insolvency Law

Abstract

In the past decade, many EU15 countries have reformed their insolvency law in order to help firms restructure. While reforms may have varied with respect to their scope, formulations and timing, they all shared the common goal of fostering corporate restructuring. Based on staggered difference-in-differences analyses, I find that firms in EU15 countries which fostered corporate restructuring by legal reform experienced higher cost of debt than firms in countries that did not. This effect is even more pronounced for firms closer to default. Furthermore, I find evidence that financial leverage and cost of equity were not impacted by the reforms. Overall, the results suggest that creditors may fear an increase in the restructuring of non-viable firms after these reforms, and therefore demand higher risk premia to compensate for increased agency and opportunity costs.

Keywords: law, finance, bankruptcy, insolvency, restructuring
JEL Codes: G21, G32, G33, G38

Authors: Frédéric Closset
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Current status: Working Paper

4.1. Introduction

Aside from some cross-country similarities, there are still important differences when it comes to insolvency law[1] around the world (e.g., La Porta et al., 1998; Djankov et al., 2007). In the EU15 countries[2], the spectrum ranges from debtor-friendly regimes oriented towards firm rescue and favoring incumbent management as in France, to creditor-friendly regimes favoring the satisfaction of secured creditors over the firm's survival as in the United Kingdom (UK) (La Porta et al., 1998). Interestingly, these insolvency regimes have been subject to an observable trend towards a restructuring regime that is similar to the one currently active in the United States of America (USA) (Franken, 2004; Closset, 2017). Given that scholars are often critical of the US restructuring system and its outcome (e.g., Bris et al., 2006), the question how corporate restructuring is perceived from the perspective of the firm and its stakeholders, and more specifically its creditors, arises.

In this paper, I exploit the staggered enactment of eight insolvency law reforms fostering corporate restructuring in the EU15 countries after 2008 to show that an emphasis on corporate restructuring increases firms' cost of debt. Specifically, I posit that, by increasing incentives to restructure, the insolvency regime might encourage restructuring of non-viable firms, and therefore lead to higher agency and opportunity costs from the creditor's perspective. As a result, creditors may demand higher risk premia to compensate for increased risks and costs.

In general, insolvency law aims at regulating the competition among the firm's stakeholders over its assets in case of insolvency (Aghion et al., 1994). This is typically achieved by specifying the rights and the level of their protection assigned to firms and their stakeholders (Hart, 1995; Cornelli and Felli, 1997; Hotchkiss et al., 2008). Creditors decide upon the allocation of their financial resources based on the riskiness of a firm's business, and thus also on the options available under financial distress (White, 2007; Eger, 2001). This results in financial contracts taking into account how insolvency law regulates the balance of power between involved actors, consequently affecting firms' cost of debt (Stiglitz and

[1] In this paper, the term "insolvency law" is used as a generic term for corporate bankruptcy, insolvency and restructuring laws.

[2] Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom (UK).

Weiss, 1981; Fudenberg and Tirole, 1990; Berkovitch et al., 1997; Hart, 2001; Bebchuk, 2002).

From a creditor perspective, fostering corporate restructuring by means of legal reform may result in two different outcomes. First, restructuring proceedings may improve creditor coordination consequently reducing the likelihood of strategic hold-out behavior, and thus inefficient firm shutdown (White, 1989; Gertner and Scharfstein, 1991; Fudenberg and Tirole, 1990; Aghion et al., 1994). Second, restructuring proceedings may incentivize the firm's management to strategically engage into restructuring of an unviable business in order to, e.g., stay in control of the firm or benefit from protection against creditor enforcement (Stiglitz and Weiss, 1981; Hart and Moore, 1998; Fudenberg and Tirole, 1990; Hart, 2001). While the first outcome would decrease firms' cost of debt, the second one would increase them due to higher agency and opportunity costs.

In the past, multiple EU15 countries have reformed their insolvency law, tending to develop towards an US-like system that emphasizes corporate restructuring (Franken, 2004; Closset, 2017). Especially following the financial crisis of 2008 and the subsequent European sovereign debt crisis of 2009, EU15 countries have reformed their insolvency law in order to help viable firms restructure. While the reforms may have varied with respect to their scope, exact formulations and timing, they all shared the common objective of establishing a legal regime encouraging firms to forgo liquidation in favor of corporate restructuring. This was achieved by the introduction of new types of insolvency proceedings such as pre-insolvency or out-of-court restructuring proceedings, or by facilitating existing procedures by providing them with helpful provisions such as a stay on creditor enforcement or the possibility to attract bridge financing with super-seniority.

From an econometric point of view, I can use the staggered introduction of these insolvency law reforms for identification. This setting establishes that only firms incorporated in countries introducing a reform are required to comply with the new legal provisions, and ensures that any decisions are not voluntary decisions by the firm or its owners and managers. As a consequence, I can perform staggered difference-in-differences analyses to compare the development of firms' cost of debt around these reforms. This allows me to

identify the causal impact of a country's increased corporate restructuring focus on firms' cost of debt.

For the empirical analysis I rely on the study of eight major insolvency law reforms in Austria, Belgium, Germany, Greece, Italy, Portugal and Spain. Each of these reforms was introduced between 2008 and 2014 and aimed at fostering corporate restructuring. Information on insolvency law reforms was taken from the dataset collected by Closset (2017) which provides an overview on insolvency law reforms introduced between 1985 and 2015 by the EU15 countries, the BRIC countries[3] and the USA. All of these insolvency law reforms are considered relevant for the country's insolvency law development and altered it in a significant way. For example, reforms only aiming at increasing procedural efficiency are excluded from the dataset. Finally, and most importantly for this paper, the dataset identifies insolvency reforms with a primary goal of encouraging corporate restructuring.

I complement these data with firm-level accounting data from Bureau Van Dijk's Amadeus database and match treated to control firms using propensity score matching based on the included control variables and exact industry. I end up with a sample of 17,006 firms and 102,036 firm-year observations between 2006 and 2016. After treatment, I observe that firms in countries which have introduced insolvency law reforms fostering corporate restructuring experienced an average increase in the cost of debt of 0.5% or 50 basis points compared to firms in countries that have not introduce any insolvency law reforms over the same period. Further analysis reveals that the effect is even more pronounced for firms closer to default while vanishing for firms far from default. The results are robust to: (i) additional time windows and fixed effects; (ii) different sets of model specifications; (iii) different sample restrictions. I also show that the parallel trends assumption is not violated. Finally, I find evidence that the introduction of the same insolvency law reforms did not impact firms' financial leverage and cost of equity.

Overall, the results suggest that creditors may fear an increase in the restructuring of non-viable firms, and therefore demand higher risk premia to cover additional agency and opportunity costs. By contrast, firms and their managers seem to be willing to pay the price for this shift of power to their favor. Their expected benefits from being able

[3] Brazil, Russia, India, China.

to engage in the restructuring of non-viable firms and benefit from protection against creditor enforcement may outweigh increased cost of debt. Finally, shareholders seem to be indifferent with respect to corporate restructuring, as their chances of receiving additional proceeds after the insolvency procedure may not be impacted in a substantial way.

This paper adds to the law and finance literature in general (La Porta et al., 1997, 1998). To this day, few scholars have studied the development of firms' cost of finance around the introduction of insolvency law reforms (Scott and Smith, 1986; Araujo et al., 2012; Vig, 2013; Hackbarth et al., 2015; Rodano et al., 2016). Their results suggest that the introduction and fostering of corporate restructuring has a negative impact on firms' cost of debt. In contrast, I rely on a multinational setting in which the staggered enactment of legal reforms is used for identification and to examine the effects of corporate restructuring on firms' cost of debt. Furthermore, the paper adds to the literature analyzing direct (Weiss, 1990; Franks and Torous, 1994; Bris et al., 2006) and indirect costs of the insolvency procedure (Levine, 1998, 1999; Franks and Sussman, 2005; Qian and Strahan, 2007; Djankov et al., 2007, 2008a; Bae and Goyal, 2009; Benmelech and Bergman, 2011) by showing that an increase in firms' cost of debt following reforms of corporate restructuring might reflect higher agency costs and opportunity costs from the creditor's perspective. Finally, the paper adds to the theoretical literature on optimal insolvency law and corporate restructuring (White, 1989; Fudenberg and Tirole, 1990; Gertner and Scharfstein, 1991; Aghion et al., 1994; Hart, 1995; Cornelli and Felli, 1997; Hart and Moore, 1998; Hart, 2000, 2001; Hotchkiss et al., 2008).

This article has important implications for firms, creditors and policymakers in the EU15 but also around the world. In the past, many countries have initiated a transition of their insolvency law towards an US-like restructuring regime (Franken, 2004; Closset, 2017). This trend has been enhanced further by international organizations encouraging a legal development towards corporate restructuring (e.g., United Nations Commission on International Trade Law, 2005; European Commission, 2014, 2016). In contrast, I present results suggesting that the fostering of corporate restructuring might also bring negative

implications to firms, especially when they are closer to default. By increasing incentives to restructure, the insolvency regime might also encourage restructuring of non-viable firms, and therefore lead to higher agency and opportunity costs from the creditor's perspective. Overall, the evidence suggests that it is important to set the right incentives for corporate restructuring, and therefore highlights the importance of well-balanced insolvency law.

The remainder of this paper proceeds as follows. Section 4.2 shortly summarizes the theoretical background. Section 4.3 gives an overview of the included insolvency law reforms fostering corporate restructuring. Section 4.4 presents the empirical strategy and the data. In Section 4.5, I provide empirical results for the causal impact of a country's focus on corporate restructuring on firms' cost of debt. Finally, Section 4.6 concludes with a summary of findings and implications.

4.2. Theoretical considerations

An evaluation of the relationship between corporate restructuring and corporate finance requires an assessment of how an optimal insolvency law should look like. Typically, insolvency law deals with firms' financial distress by means of two procedures: liquidation and firm restructuring. Both procedures share the common objective of resolving creditors' conflicting positions once financial distress has arisen (Aghion et al., 1994; Acharya and Subramanian, 2009). Restructuring proceedings, however, differ to the extent that they also need to incentivize the firm to repay its outstanding debt.

In general, insolvency law should consequently aim at regulating the competition among the firm's stakeholders over its assets in case of insolvency (Aghion et al., 1994). Thus, its two main goals are to minimize ex-ante as well as ex-post inefficiencies by specifying the rights and the level of their protection assigned to the firm and its stakeholders (Hart, 1995; Cornelli and Felli, 1997; Hotchkiss et al., 2008).

An ex-ante efficient insolvency law incentivizes the firm and its stakeholders towards a value-maximizing behavior before the event of insolvency. Ex-post efficiency aims at achieving a maximum value for the firm's stakeholders once the firm is considered insolvent (Hart, 1995, 2000). In the long-run, the ultimate goal of the insolvency regime is

to act as a screening mechanism, separating financially distressed but economically viable firms from inefficient, nonviable ones (White, 1989; Gertner and Scharfstein, 1991).

Given that measures of ex-ante efficiency are hard to implement because of the wide variety of potential influences on managerial behavior, much of the literature focuses on measuring the ex-post efficiency of the legal regime (Hotchkiss et al., 2008). In the past, a large part of the empirical literature focused on direct costs to study the ex-post efficiency of insolvency regimes (e.g., Weiss, 1990; Franks and Torous, 1994; Bris et al., 2006). Lately, research started to investigate the indirect costs of financial distress by studying the cross-country impact of the insolvency regime on firms' cost of finance and specifically on firms' cost of debt (e.g., Levine, 1998, 1999; Franks and Sussman, 2005; Qian and Strahan, 2007; Djankov et al., 2007, 2008a; Bae and Goyal, 2009; Benmelech and Bergman, 2011). Djankov et al. (2008a) find that debt enforcement predicts private wealth and capital markets. Bae and Goyal (2009) show that poor legal protection of creditors and inefficient debt enforcement lead banks to reduce loan amounts and increase loan spreads. Consistently, Qian and Strahan (2007) find that higher creditor protection induces lower interest rates and long-term lending. From a within-country perspective, Franks and Sussman (2005) show that, in the UK, banks have a negative stance towards financial firm restructuring in order to avoid strategic default behavior by firms. Benmelech and Bergman (2011) show that industry-specific national waves of insolvencies negatively impact firms' cost of debt within the same industry.

In order to address criticism regarding identification, scholars also examined firms' cost of debt around the introduction of major insolvency law reforms (Scott and Smith, 1986; Araujo et al., 2012; Vig, 2013; Hackbarth et al., 2015; Rodano et al., 2016). All in all, their results indicate that creditors adopt a negative stance towards corporate restructuring, and thus require additional compensation via increased interest rates. Scott and Smith (1986) investigate the 1978 insolvency law reform in the USA and find that it raised firms' cost of debt by, e.g., introducing a stay on creditor enforcement. Interestingly, Araujo et al. (2012) find that the 2005 insolvency law reform in Brazil lowered firms' cost of debt. However, they are not able to untangle the potentially mitigating effects from the simultaneous

reform of liquidation and restructuring procedures. In contrast, Rodano et al. (2016) are able to untangle these effects by studying the 2005 and 2006 insolvency law reforms in Italy. Specifically, their results suggest that the introduction of restructuring proceedings increased firms' cost of debt while the subsequent strengthening of liquidation proceedings reduced them.

The significant impact of insolvency provisions on firms' cost of debt is not surprising. Creditors decide upon the allocation of their financial resources based on the riskiness of a firm's business, and thus also on the options available under financial distress (White, 2007; Eger, 2001). This results in financial contracts taking into account how insolvency law regulates the balance of power between the firm and its stakeholders, consequently affecting a firms' cost of debt (Stiglitz and Weiss, 1981; Fudenberg and Tirole, 1990; Berkovitch et al., 1997; Hart, 2001; Bebchuk, 2002).

Fostering corporate restructuring by means of legal reform may consequently result in two different outcomes with respect to firms' cost of debt. First, restructuring proceedings may improve creditor coordination, and thus reduce the likelihood of strategic hold-out behavior and inefficient firm shutdown (White, 1989; Gertner and Scharfstein, 1991; Fudenberg and Tirole, 1990; Aghion et al., 1994). Second, restructuring proceedings may incentivize the firm's management to strategically engage into restructuring of an unviable business in order to, e.g., stay in control of the firm or benefit from protection against creditor enforcement (Stiglitz and Weiss, 1981; Hart and Moore, 1998; Fudenberg and Tirole, 1990; Hart, 2001). While the first outcome would decrease firms' cost of debt due to higher prospects of satisfaction, the second one would increase them in order to account for additional agency and opportunity costs.

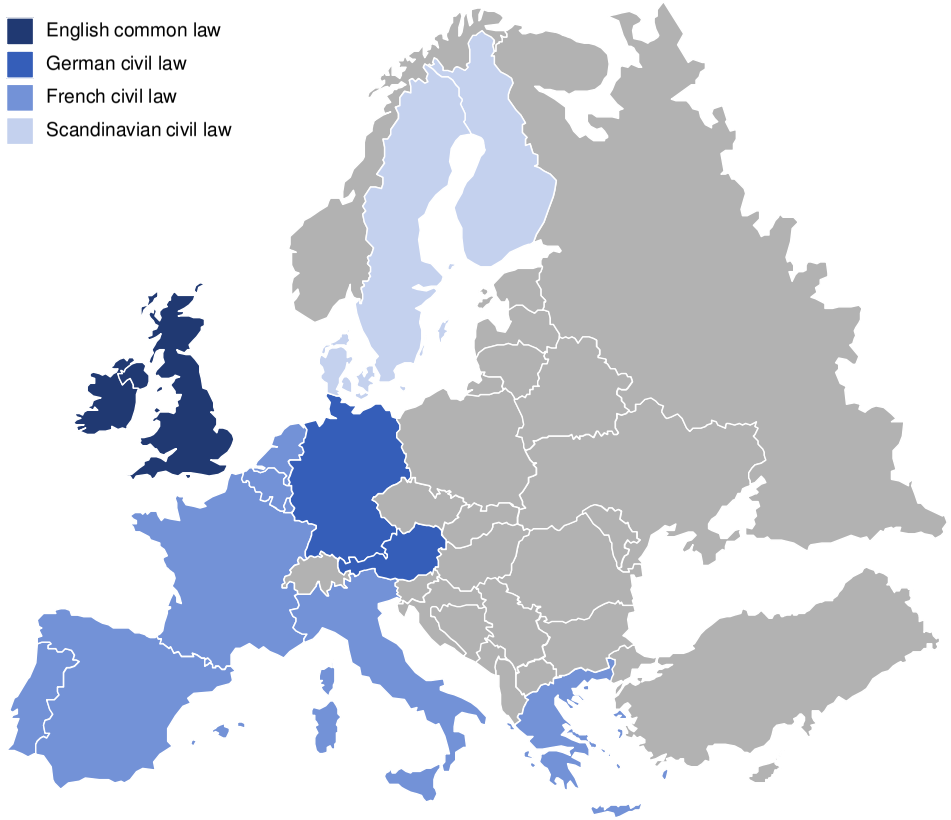
To conclude, fostering corporate restructuring by means of insolvency law reform can either decrease or increase firms' cost of debt. The final outcome depends on whether the positive effects from increased creditor coordination outweigh the negative implications by the respective agency problem and forgone alternatives. In this paper, I exploit the staggered enactment of insolvency laws fostering corporate restructuring in the EU15 countries after 2008 to study this causal relationship between corporate restructuring and

firms' cost of debt.

4.3. Insolvency law reforms

In order to investigate the relationship between corporate restructuring and firms' cost of debt, I rely on the dataset collected and provided by Closset (2017) which presents an overview on insolvency law reforms introduced between 1985 and 2015 by the EU15 countries, the BRIC countries and the USA. All of these insolvency law reforms are reforms that are considered relevant for the country's insolvency law development and which have altered it in a significant way. For example, reforms that encompass minor adjustments due to changes in other law texts or reforms that only aim at increasing procedural efficiency are excluded from the dataset. Finally, and most importantly for this paper, the dataset identifies those insolvency reforms with a primary goal of encouraging corporate restructuring by introducing restructuring proceedings or reforming and strengthening existing ones.
The scope of this paper lies on the EU15 countries whereof two countries are countries with an English common law tradition (Ireland, UK), two countries have a legal origin in German civil law (Austria, Germany), eight countries originated from French civil law (Belgium, France, Greece, Italy Luxembourg, Netherlands, Portugal, Spain) and finally, three countries evolved from Scandinavian civil law (Denmark, Finland, Sweden). Interestingly, the majority of countries within the EU15 has a legal origin in French civil law because Napoleon installed it in its conquered territories during the 18th and 19th century. Figure 4.1 provides an overview of the countries.

Figure 4.1.: Countries in the sample.



The figure highlights the EU15 countries included in the sample: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom (UK). Additionally, the figure provides information on each country's legal origin according to the four legal families: English Common Law, German Civil Law, French Civil Law and Scandinavian Civil Law. The sample consists of two countries with a legal origin in English common law (Ireland, UK), two countries with a legal origin in German civil law (Austria, Germany), eight countries with a legal origin in French civil law (Belgium, France, Greece, Italy Luxembourg, Netherlands, Portugal, Spain) and three countries with a legal origin in Scandinavian civil law (Denmark, Finland, Sweden). Source: Djankov et al. (2007).

Many of these countries were strongly impacted by the financial crisis of 2008 and the subsequent European sovereign debt crisis of 2009. Table 4.1 shows that around the years 2008 and 2009 both the absolute number and the relative number of insolvencies rose in the EU15 countries. The so-called GIIPS-countries, i.e., Greece, Italy, Ireland, Portugal and Spain, were especially impacted by both crises. Many of the EU15 countries consequently reformed their insolvency law in order to help viable firms restructure, tending to develop towards an US-like system that emphasizes and fosters corporate restructuring (Franken, 2004; Closset, 2017). Specifically, eight reforms fostering corporate restructuring in the EU15 countries can be identified. In the following, I shortly describe these reforms and their provisions regarding corporate restructuring. An overview of the reforms can be found in Table 4.2.

The Austrian insolvency law was reformed by the enactment of the 2010 Restructuring Act (IRÄG - "Insolvenzrechtsänderungsgesetz"). Its main goal was to unify existing provisions regarding insolvency law while creating dedicated provisions aiming at efficient corporate restructuring. This was achieved by setting up provisions securing existing contracts critical to the firm's continuation, all while establishing provisions helping to relieve the firm from financial distress.

Belgium reformed its provisions regarding corporate restructuring with the 2009 Business Continuity Act ("Loi relative à la continuité des entreprises"). The reform's main objective was to incentivize firms to file for restructuring proceedings by introducing various options for out-of-court and court-supervised restructuring proceedings. Under these new proceedings, the debtor's management may remain in control of the business even if the prospect of continuity may be questionable. Additionally, secured creditors may be required to waive their enforcement rights for a given period of time.

Danish insolvency law was amended with the introduction of a number of rules regarding corporate restructuring ("LOV No.718") in 2010. The reform's main objective was to introduce proceedings focused on the restructuring of the debtor's business model. Thus, the reform would repeal and replace existing provisions mainly focused on debt restructuring.

Germany reformed its insolvency law by passing the 2011 Restructuring Act (ESUG -

Table 4.1.: Absolute and relative number of insolvencies around 2008 and 2009.

Panel A: Absolute number of insolvencies

Country	2006	2007	2008	2009	2010	2011	2012
Austria	6,854	6,362	6,500	7,050	6,657	6,194	6,266
Belgium	7,455	7,690	8,300	9,430	9,620	10,182	10,587
Denmark	1,987	2,400	3,710	5,600	6,460	5,447	5,456
Finland	2,350	2,300	2,660	3,310	2,870	3,005	2,956
France	38,369	42,670	49,100	55,800	51,060	49,506	48,340
Germany	31,300	27,490	29,800	34,300	32,100	30,200	28,720
Greece	520	510	530	360	355	452	415
Ireland	296	310	700	1,400	1,525	1,631	1,684
Italy	15,900	5,410	7,130	9,098	10,923	11,792	12,311
Luxembourg	634	680	590	698	918	961	1,033
Netherlands	6,052	4,710	6,580	10,500	7,340	7,000	7,373
Portugal	3,400	3,350	3,500	4,450	5,144	6,025	8,605
Spain	849	830	2,100	4,900	4,770	5,752	7,799
Sweden	5,264	4,890	6,300	7,600	7,510	7,177	7,737
United Kingdom	13,777	12,950	14,880	20,300	17,690	18,571	17,748
Total	**135,007**	**122,552**	**142,380**	**174,796**	**164,942**	**163,895**	**167,030**

Panel B: Relative number of insolvencies per 10,000 firms

Country	2006	2007	2008	2009	2010	2011	2012
Austria	190	240	224	235	163	152	154
Belgium	105	110	115	165	160	132	138
Denmark	109	131	149	183	207	182	182
Finland	97	95	107	103	89	94	93
France	149	166	215	188	102	94	92
Germany	106	90	96	96	89	84	89
Greece	7	7	6	4	7	5	5
Ireland	30	31	82	87	75	82	85
Italy	26	13	18	23	24	26	27
Luxembourg	239	256	233	242	321	316	339
Netherlands	124	87	103	165	87	81	85
Portugal	27	27	40	40	47	57	81
Spain	3	3	7	16	14	18	24
Sweden	99	92	108	131	72	68	73
United Kingdom	69	82	76	90	69	81	77
Total	**1,380**	**1,430**	**1,579**	**1,768**	**1,526**	**1,472**	**1,544**

Source: Creditreform (2007, 2008, 2009, 2010, 2011, 2012, 2013)

"Gesetz zur weiteren Erleichterung der Sanierung von Unternehmen"). The reform's major goal was to shift the understanding from a satisfaction of creditors towards efficient firm restructuring based on a restructuring plan. To achieve this, the reform implemented three major elements. First, it introduced a preliminary creditor's committee with adequate powers. Second, it introduced protection scheme proceedings in combination with a stay on creditor enforcement. Third, it allowed for debt-to-equity swaps without shareholders' consent.

Greece addressed corporate restructuring under financial distress with the 2011 Reform No. 4013/2011. The reform's main goal was to replace ineffective conciliation proceedings by so-called rehabilitation proceedings focused on the continuation of the firm's business and the restructuring of its debts. Besides providing for general streamlining provisions the reform introduced a possibility to cram down dissenting creditors and established protective measures to prevent abuses of the stay on creditor enforcement.

The Companies Act of 2014 reformed the Irish insolvency law in order to increase the attractiveness of the examinership procedure (restructuring procedure). It especially consolidated existing provisions and introduced protection mechanisms for small firms, making the procedure more cost-efficient, and thus more attractive for these small firms.

The 2012 insolvency law reform ("No. 83") altered the Italian legal status quo in a way that offered more flexible options for business restructuring. The reform implemented three main provisions. First, it provided debtors with the possibility to elaborate a restructuring plan while under protection of a stay on creditor enforcement ("concordato bianco"). Second, it allowed debtors to come up with a pre-insolvency restructuring plan that would ensure going concern. Third, it created the possibility to attract bridge financing with super-seniority.

The Portuguese insolvency law was substantially reformed by the 2012 Decree-Law No. 16/2012 and Decree-Law No. 178/2012. The reforms introduced two new proceedings incentivizing firm restructuring over liquidation: court-monitored pre-insolvency proceedings (PER - "Proceso Especial de Revitalização") and out-of-court restructuring proceedings (SIREVE - "Sistema de Recuperação por Via Extrajudicial"). The PER procedure

aimed at avoiding precipitous liquidation and provides for a stay on creditor enforcement. The SIREVE procedure intended to speeding up negotiations between the debtor and its main creditors by reducing requirements for creditor participation.

Spain fostered its provisions on corporate restructuring with the 2011 Law No. 38/2011. This reform was part of a series of insolvency law reforms that were initiated by the 2009 Royal Decree Law 3/2009 aiming at modernizing and updating Spanish insolvency law. First, it intended at facilitating refinancing agreements by providing firms with the protection of an automatic stay on creditor enforcement. Second, it allowed for debtor-in-possession financing in order to keep the firms' business in operation.

All in all, while the reforms may have varied with respect to their scope, exact formulations and timing, they all shared the same objective of establishing a legal regime encouraging firms to forgo liquidation in favor of corporate restructuring. This was achieved by the introduction of new types of insolvency proceedings such as pre-insolvency or out-of-court restructuring proceedings, or by facilitating existing procedures by providing them with helpful provisions such as a stay on creditor enforcement or the possibility to attract bridge financing with super-seniority. In the following, I exploit the staggered nature of these reforms for identification in order to ultimately investigate the causal relationship between corporate restructuring and firms' cost of debt.

4.4. Empirical strategy

4.4.1. Methodology

I rely on a difference-in-differences strategy (DiD) around the introduction of legal reforms to better understand the causal relationship between corporate restructuring and firms' cost of debt.[4] I exploit the staggered passing of these insolvency law reforms fostering corporate restructuring for identification. This setting establishes that only firms incorporated in countries introducing a reform are required to comply with the new legal provisions, and ensures that any decisions are not voluntary decisions by the firm or its

[4] Staggered DiD designs are frequently applied in empirical finance research (e.g., Bertrand and Mullainathan, 2003). A detailed discussion of staggered DiD designs can, for example, be found in Atanasov and Black (2015) or Roberts and Whited (2013).

Table 4.2.: Overview on insolvency law reforms fostering corporate restructuring.

(1)	(2)	(3)	(4)	(5)
Country	Year	Name	Main purpose	Main changes to former law
Austria	2010	Insolvenzrechtsänderungsgesetz (IRÄG)	Unify Austrian insolvency law and facilitate restructuring	Introduced a unified Insolvency Act; Lowered the threshold for self-administration; Restricted contract termination during moratorium
Belgium	2009	Loi relative à la continuité des entreprises	Facilitate restructuring through the preservation of the legal entity or the business	Introduced two out-of-court and three court-supervised restructuring proceedings; Improved proceedings to transfer businesses liability-free; Established that the debtor remains in control during restructuring
Denmark	2010	LOV (No. 718)	Shift restructuring from debt restructuring to firm restructuring	Introduced firm restructuring proceedings; Required compulsory composition and/or business transfer; Introduced possibility to remove the debtor's management
Germany	2011	Gesetz zur weiteren Erleichterung der Sanierung von Unternehmen (ESUG)	Promote restructuring and strengthen creditor rights	Introduced protection scheme proceedings; Established a preliminary creditors committee with wide powers; Allowed for debt-to-equity swaps
Greece	2011	Establishment of the Independent Single Public Procurement Authority and the Central Electronic Registry Public Procurement (No. 4013/2011)	Reform pre-insolvency composition procedures	Replaced conciliation proceedings by rehabilitation proceedings; Reinstated special going-concern liquidation
Ireland	2014	Companies Act	Streamline liquidation procedure and make examinership more attractive to small firms	Streamlined provisions for liquidation proceedings; Optimized examinership to make it more cost-efficient for small companies

Continued on next page.

Table 4.2 - continued from previous page

(1)	(2)	(3)	(4)	(5)
Country	Year	Name	Main purpose	Main changes to former law
Italy	2012	Urgent measures for the growth of the country (No. 83)	Offer more flexible options for business restructuring	Introduced the possibility for debtors to work on a restructuring plan under a stay of enforcement; Introduced a going-concern per-insolvency restructuring plan
Portugal	2012	Decree-Law No. 16/2012	Introduce debtor recovery as a going concern	Introduced pre-insolvency special revitalization proceedings
Portugal	2012	Decree-Law No. 178/2012	Facilitate recovery through early and fast agreements	Introduced out-of-court restructuring proceedings
Spain	2011	Law No. 38/2011	Promote use of court-supervised proceedings and further increase efficiency of existing proceedings	Encouraged refinancing agreements by introducing stay on assets; Introduced debtor-in-possession financing; Reduced number of insolvency administrators to one

Notes: This table provides an overview of the insolvency law reforms fostering corporate restructuring introduced in the EU15 countries after 2008. Columns (2) and (3) provide information on the reform's name and its year of enactment. Columns (4) and (5) add details about the reform's main purpose an its changes to the former insolvency law.

owners and managers.

The time period considered for the insolvency reforms to be introduced ranges from 2008 to 2014. The beginning of this time period is set by the financial crisis of 2008 and the subsequent European sovereign debt crisis of 2009 which resulted in increased firm default rates. The end of the time period is defined by the time windows used in the staggered DiD models. I analyze time windows from three years before to two years after the reforms, and from two years before to one year after the reforms. In order to work with yearly accounting data I select the year in which the respective national insolvency law reforms were passed as a proxy for their introduction. By doing so I account for potential anticipation close to the passing of those reforms.

The treatment group comprises firms from EU15 countries that introduced law reforms fostering corporate restructuring between 2008 and 2014. The control group consists of firms from EU15 countries that did not pass any insolvency law reform over the same period. As suggested by Atanasov and Black (2015), I use an identical number of matched control firms to reduce potential differences between treated and control firms. The staggered DiD specification is as follows:

$$\begin{aligned}\text{INTEREST}_{i,t} = \alpha_i + \tau_t \\ + \gamma \cdot \text{TREATED}_i \\ + \delta \cdot \text{POST}_t \\ + \beta \cdot \text{TREATED}_i \cdot \text{POST}_t \\ + \overrightarrow{\nu} \cdot \overrightarrow{\text{X}}_{i,t} \\ + \epsilon_{i,t}.\end{aligned}$$

$\text{INTEREST}_{i,t}$ is the cost of debt of firm i in year t. α_i and τ_t are firm and year fixed effects, respectively. TREATED_i is a dummy equal to one for each firm in the treatment group and zero for each firm in the control group. POST_t is a dummy equal to one in and after the year of the respective insolvency law reform, i.e., after its introduction. $\overrightarrow{X_{i,t}}$ is a vector of firm-specific and time-variant control variables. $\epsilon_{i,t}$ is the error term. Standard errors are clustered by country.

4.4.2. Data

The sample I use for the staggered DiD regressions, contains data on public and private firms from EU15 countries. It is based on data from Bureau van Dijk's Amadeus database[5]. For sample construction, I use financial and non-financial data from their database, which contains data on all public and private European firms. An overview of the sample construction process can be found in Table 4.3.

I start with all very large firms for which financial statements are available in Amadeus. According to Amadeus, very large firms are firms that fulfill at least one of the following criteria: operating revenue larger than €100m or total assets larger than €200m or a number of employees larger than 1000 or a public listing. Consistent with the literature, I drop financial firms such as banks and insurance firms from the sample.

The assignment to treatment and control group in my staggered DiD identification strategy is based on each firms' country of incorporation. I assign firms incorporated in Austria, Belgium, Denmark, Germany, Greece, Italy, Portugal and Spain to the treatment group while assigning firms from Finland, France, Ireland, Luxembourg, Sweden and the UK to the control group. I decide to move Ireland to the control group because its 2014 insolvency law reform only affected small firms. Given that my sample consists of very large firms only, I assume that they were not affected by the respective provisions.[6] Finally, in order to balance the sample, I require firms to have data coverage ranging at least from three years before the reform to two years after the reform. Due to this requirement and poor historical coverage for Danish firms in Amadeus, all firm-year observations from Denmark are dropped from the sample.

To alleviate concerns that size differences would bias my findings, I balance treatment and control groups using propensity score matching as presented by Rosenbaum and Rubin (1983). For each treated firm I search for a nearest neighbor out of the control group by matching based on all control variables in the year preceding the respective reform's introduction. Additionally, I require exact industry-matching based on the Fama/French ten industries classification. I match with replacement and under the restriction of a

[5] See `https://amadeus.bvdinfo.com` for further details.

[6] In unreported analyses, I find that my results are robust when including Ireland in the treatment group.

caliper set to 1%. The final sample covers 102,036 firm-year observations related to 17,006 firms between 2006 and 2016. An overview of the sample's firm-year observations and firms per country can be found in Table 4.4.

Firms' cost of debt are generally not subject to public disclosure and data on loan pricing as well as bond issuance is especially scarce in Southern European countries which constitute a fair part of my treatment group. Therefore, I rely on a proxy measure for firms' cost of debt (c.f., Acharya et al., 2017). INTEREST is defined as interest paid divided by total debt excluding provisions and accruals. Several control variables are included in the staggered DiD analysis. For each firm, I compute information on LEVERAGE, defined as total debt divided by total debt plus the book value of equity, SIZE, defined as the natural logarithm of total assets, TANGIBILITY, defined as fixed assets divided by total assets, PROFITABILITY, defined as EBITDA divided by total assets and NET WORTH defined as total shareholder funds minus cash divided by total assets. Finally, I base firm and year fixed effects on firm ids and year dummies respectively. Detailed definitions of all variables and their sources are summarized in Appendix E. In order to mitigate concerns related to outliers I winsorize variables at the 1% and the 99% levels. Descriptive statistics for all variables can be found in Table 4.5.

Additionally, Table 4.6 presents descriptive statistics before and after propensity score matching. I report t-statistics for the null hypothesis of equal means and normalized differences as proposed by Imbens and Wooldridge (2009). After propensity score matching based on the included control variables and exact industry, I observe reduced t-statistics and absolute normalized differences below or equal to the maximum value of 0.25 suggested by Imbens and Wooldridge (2009). I conclude that my sample presents sufficient balance between treatment and control groups for the staggered DiD analyses.

4.5. Empirical results

4.5.1. Main results

Before presenting results from staggered DiD regressions, I show some graphical analysis to better understand the impact of corporate restructuring on firms' cost of debt. Figure 4.2

Table 4.3.: Sample generation process.

Step	Description	N	Firms	*treated*	*control*
Panel A: General data preparation and cleaning					
1	All very large private and public firms from EU15 countries out of Amadeus with at least one financial statement for the years 2000 and after.	633,747	66,745	-	-
2	I drop double firm-year observations, e.g., income statement provided according to two different methodologies.	529,591	66,745	-	-
3	I drop financial firm observations, i.e., Fama/French industries 45-48 and firms' observations with missing industry classification.	351,400	42,413	-	-
4	I drop firm-year observations with missing variables for the staggered DiD model, i.e., dependent or control variables missing.	223,609	29,699	-	-
Panel B: Sample construction					
5	I assign firm observations to treatment and control groups based on their country of incorporation.	223,609	29,699	*15,488*	*14,211*
6	I drop firm observations that are outside the considered time frame of 2008 to 2014 given by the first and last reform in the sample.	184,942	28,498	*14,745*	*13,753*
7	I require firms to have at least six firm-year observations between 2006 and 2016 in order to balance the panel	160,328	20,192	*11,847*	*8,345*
8	I perform propensity score matching with replacement by matching on all control variables and exact industry based on the Fama/French ten industries classification.	102,036	17,006	*8,503*	*8,503*

According to the Amadeus database, very large firms are firms that fulfill at least one of the following criteria: operating revenue larger than €100m or total assets larger than €200m or a number of employees larger than 1000 or a public listing. Treated firms are firms from EU15 countries that implemented an insolvency law reform fostering corporate restructuring between 2008 and 2014. Control firms are from EU15 countries that did not implement any insolvency law reform over the same period and are matched based on the included control variables and exact industry.

Table 4.4.: Country overview.

Panel A: Treated countries				
Country	N	Firms	% of treated	% of total
Austria	2,616	436	5.1%	2.6%
Belgium	1,002	167	2.0%	1.0%
Germany	17,952	2,992	35.2%	17.6%
Greece	1,326	221	2.6%	1.3%
Italy	17,718	2,953	34.7%	17.4%
Portugal	810	135	1.6%	0.8%
Spain	9,594	1,599	18.8%	9.4%
Total Treated	**51,018**	**8,503**	**100.0%**	**50.0%**
Panel B: Control countries				
Country	N	Firms	% of control	% of total
Finland	2,652	442	5.2%	2.6%
France	21,798	3,633	42.7%	21.4%
Ireland	702	117	1.4%	0.7%
Luxembourg	612	102	1.2%	0.6%
Sweden	4,890	815	9.6%	4.8%
United Kingdom	20,364	3,394	39.9%	20.0%
Total Control	**51,018**	**8,503**	**100.0%**	**50.0%**
Total	**102,036**	**17,006**	**-**	**100.0%**

Treated firms are firms from EU15 countries that implemented an insolvency law reform fostering corporate restructuring between 2008 and 2014. Control firms are from EU15 countries that did not implement any insolvency law reform over the same period and are matched based on the included control variables and exact industry.

Table 4.5.: Summary statistics.

Variable	N	Mean	SD	P25%	Median	P75%
INTEREST	102,036	0.04	0.06	0.01	0.02	0.04
LEVERAGE	102,036	0.66	0.23	0.50	0.68	0.83
SIZE	102,036	18.58	1.39	17.69	18.48	19.39
TANGIBILITY	102,036	0.40	0.27	0.17	0.37	0.60
PROFITABILITY	102,036	0.08	0.10	0.03	0.07	0.13
NET WORTH	102,036	0.28	0.25	0.12	0.27	0.44
GDP GROWTH	102,036	0.00	0.08	-0.06	0.01	0.07
STOCK MARKET	94,494	62.00	32.82	37.76	47.67	93.36
INFLATION	102,036	0.01	0.01	0.01	0.01	0.02
IC RATIO	98,194	25.23	79.88	0.62	3.49	13.69
ALTMAN Z	78,786	25.88	133.20	2.88	4.13	6.36
ICC	4,861	0.13	0.07	0.09	0.11	0.15
BOOK TO MARKET	5,154	0.51	0.19	0.38	0.52	0.64

A description of all variables can be found in Appendix E.

Table 4.6.: Balancing of treatment and control groups.

	Before matching				After matching			
Variable	Mean (treated)	Mean (unmatched control)	t-test	Normalized difference	Mean (treated)	Mean (matched control)	t-test	Normalized difference
INTEREST	0.04	0.04	-1.26	0.00	0.04	0.04	-3.47	-0.02
LEVERAGE	0.65	0.66	-7.29	-0.03	0.66	0.66	0.00	0.00
SIZE	18.51	18.63	-16.10	-0.06	18.57	18.59	-2.29	-0.01
TANGIBILITY	0.40	0.39	10.04	0.04	0.40	0.40	2.98	0.01
PROFITABILITY	0.09	0.09	-1.66	-0.01	0.08	0.08	-0.16	0.00
NET WORTH	0.27	0.25	15.86	0.06	0.28	0.28	1.95	0.01

For the sample I report t-statistics for the null hypothesis of equal means and normalized differences as proposed by Imbens and Wooldridge (2009). After propensity score matching, I observe reduced t-statistics as well as absolute normalized differences below or equal to the maximum value of 0.25 suggested by Imbens and Wooldridge (2009). According to the Amadeus database, all firms, treated and control, are firms that fulfill at least one of the following criteria: operating revenue larger than €100m or total assets larger than €200m or a number of employees larger than 1000 or a public listing. Treated firms are firms from EU15 countries that implemented an insolvency law reform fostering corporate restructuring between 2008 and 2014. Control firms are from EU15 countries that did not implement any insolvency law reform over the same period and are matched based on the included control variables and exact industry. A description of all variables can be found in Appendix E.

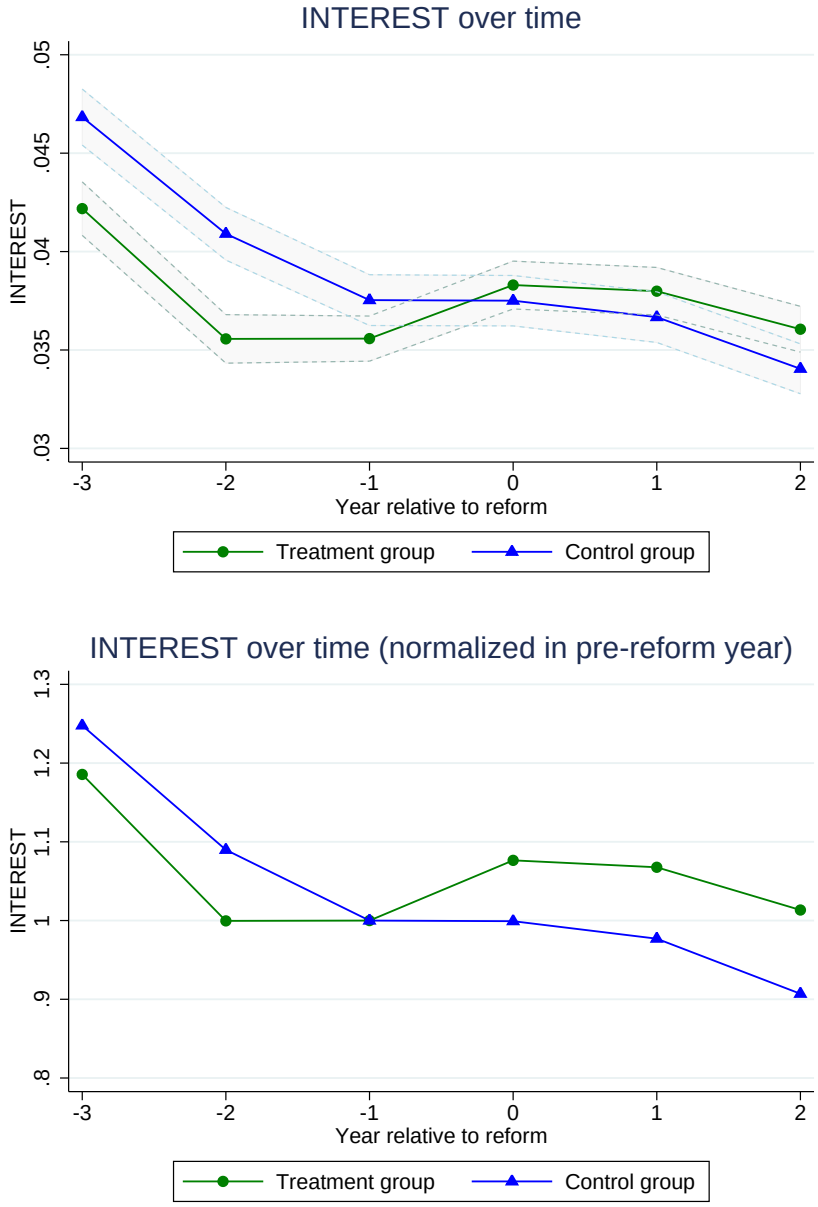
shows the development of firms' average cost of debt for the treatment group, i.e., firms from Austria, Belgium, Germany, Greece, Italy, Portugal and Spain and the control group, i.e., firms from Finland, France, Ireland, Luxembourg, Sweden and the UK. Because my sample consists of multiple insolvency law reforms between 2008 and 2014, the development is shown relative to the introduction year of each reform. Over the years preceding the reforms, the treatment and control group exhibit a declining parallel trend. Therefore, I conclude that the parallel trends assumption is not violated. Nevertheless, it is noteworthy that the treatment group shows a slight positive trend indicating potential anticipation effects in the immediate year preceding the reforms' introduction.

Furthermore, I observe that in the relative years following the introduction of the reforms, treated firms seem to benefit from lower average cost of debt. Figure 4.3 indicates that this effect might have led to a relative decrease of debt over equity in treated firms compared to a relative increase of debt over equity in control firms. However, Figure 4.4 shows that firm leverage experienced a steady declining parallel trend for the treatment and control group over the considered period.

The staggered DiD analysis around the introduction of insolvency law reforms fostering corporate restructuring can be found in Table 4.7. TREATED distinguishes treatment from control firms. POST equals one in and after the introduction year of each reform. I choose time windows from three years before to two years after the reforms, and a narrower time window ranging from two years before to one year after the reforms. TREATED and POST are absorbed by firm and year fixed effects respectively. The interaction term between TREATED and POST is the main variable of interest.

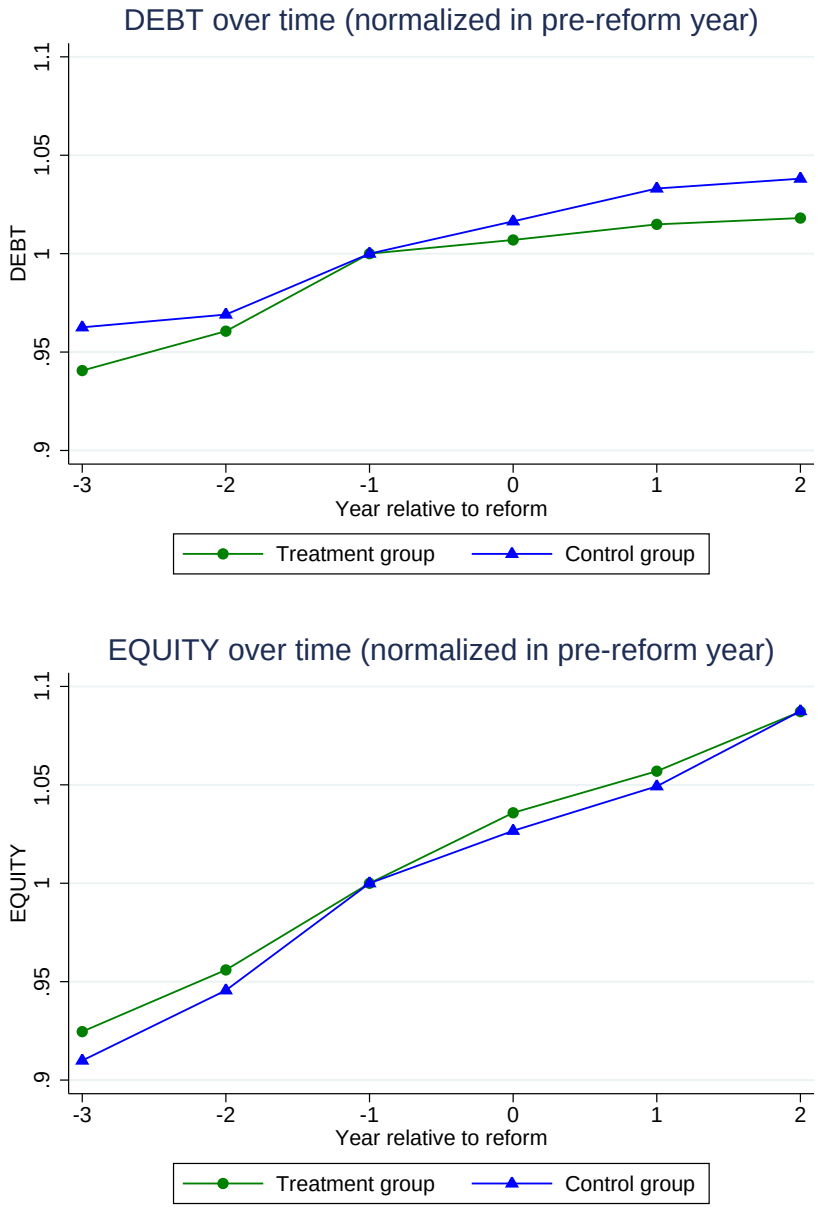
In all models, with or without control variables, the coefficients for the interaction term are positive and statistically significant. The magnitude of the coefficients suggests that firms in countries which have introduced insolvency law reforms fostering corporate restructuring experienced an average increase in the cost of debt of 0.5% or 50 basis points compared to firms in countries that have not.

Figure 4.2.: Development of mean interests around respective reforms.



In order to work with yearly accounting data I select the year in which the respective insolvency law reforms were passed as a proxy for their introduction. Treated firms are firms from EU15 countries that implemented an insolvency law reform fostering corporate restructuring between 2008 and 2014. Control firms are from EU15 countries that did not implement any insolvency law reform over the same period and are matched based on the included control variables and exact industry. The first figure additionally provides for confidence intervals at the 95%-level. A description of all variables can be found in Appendix E.

Figure 4.3.: Development of mean debt and equity around respective reforms.



In order to work with yearly accounting data I select the year in which the respective insolvency law reforms were passed as a proxy for their introduction. Treated firms are firms from EU15 countries that implemented an insolvency law reform fostering corporate restructuring between 2008 and 2014. Control firms are from EU15 countries that did not implement any insolvency law reform over the same period and are matched based on the included control variables and exact industry. A description of all variables can be found in Appendix E.

Table 4.7.: Interest: Staggered difference-in-differences regressions.

Model	(1)	(2)	(3)	(4)
Reform window	[-3;+2]	[-2;+1]	[-3;+2]	[-2;+1]
Dep. variable:		INTEREST		
TREATED x POST	**0.005*** (4.445)**	**0.004** (2.923)**	**0.005*** (3.814)**	**0.004** (2.622)**
LEVERAGE			-0.015	-0.030***
			(-1.428)	(-3.102)
SIZE			-0.009***	-0.011***
			(-5.036)	(-4.859)
TANGIBILITY			0.012*	0.011*
			(1.946)	(1.834)
PROFITABILITY			0.005	0.003
			(0.775)	(0.377)
NET WORTH			-0.003	-0.003
			(-0.359)	(-0.333)
Constant	0.043***	0.048***	0.208***	0.271***
	(13.668)	(15.198)	(6.599)	(5.848)
Observations	102,036	68,024	102,036	68,024
Number of firms	17,006	17,006	17,006	17,006
Within-R^2	0.0101	0.00468	0.0141	0.0124
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

The table presents coefficients from staggered difference-in-differences regressions. INTEREST, i.e., cost of debt, is the dependent variable. The sample is restricted to observations in the time window around the introduction of respective insolvency law reforms fostering corporate restructuring presented in column titles. TREATED is a dummy variable set to one for treatment firms, and zero otherwise. Treated firms are firms from EU15 countries that implemented an insolvency law reform fostering corporate restructuring between 2008 and 2014. Control firms are from EU15 countries that did not implement any insolvency law reform over the same period and are matched based on the included control variables and exact industry. POST is a dummy variable set to one in and after the introduction year of each reform. All models are firm and year fixed effects regressions. T-statistics based on Huber/White robust standard errors clustered by country are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A description of all variables can be found in Appendix E.

4.5.2. Robustness tests

In the following, I perform robustness tests in order to verify the validity of my main results. I start by testing my specification for robustness along time-windows and fixed effects. The results are presented in Table 4.8. In models (1) and (2) I restrict the sample to symmetrical time windows of two years and one year around the respective reforms. In models (3) and (4) I add additional country-year fixed effects to account for potential bias from countries that were especially affected by the implications of the financial and European sovereign debt crisis, i.e., Greece, Italy, Ireland, Portugal and Spain (GIIPS). Therefore, I generate a dummy variable set to one for firms incorporated in GIIPS countries and zero otherwise. In a second step I interact this GIIPS-dummy with year-dummies and include the resulting interaction dummies in models (3) and (4). I observe that the coefficient for the interaction term remains positive, of a similar magnitude and statistically significant with exception of model (2). The missing statistical relevance in model (2) is most likely due to the accounting-based computation, and thus sluggish behavior, of the INTEREST variable.

Furthermore, I test for two important aspects in the context of staggered DiD analyses: pre-event trends and falsification. First, the assumption of pre-event parallel trends between treatment and control group is crucial for the validity of staggered DiD designs. In addition to the graphical analysis in Figure 4.2, I analyze the time effects around the introduction of the respective legal reforms fostering corporate restructuring. Table 4.9 presents the corresponding results. In accordance with the parallel trend assumption I observe no significant loadings on interaction terms before the reforms' introduction. As expected, I only observe a significant impact after the reforms were introduced. From this I further conclude that my results are not driven by anticipation effects as observed in Figure 4.2.

Second, I verify the validity of the staggered DiD design by successively replacing the dependent variable with one of the chosen control variables. Intuition holds that control variables should remain unaffected by the introduction of the respective reforms. Table 4.10 presents the respective results. Consistent with predictions, I do not observe any

Table 4.8.: Interest: Additional time and fixed effects perspectives.

Model	(1)	(2)	(3)	(4)
Reform window	[-2;+2]	[-1;+1]	[-3;+2]	[-2;+1]
Dep. variable:		INTEREST		
TREATED x POST	**0.004*** **	**0.002**	**0.005*** **	**0.003** **
	(3.596)	**(1.350)**	**(3.144)**	**(2.903)**
LEVERAGE	-0.020**	-0.030***	-0.015	-0.029***
	(-2.613)	(-4.243)	(-1.421)	(-3.076)
SIZE	-0.009***	-0.012***	-0.009***	-0.011***
	(-6.094)	(-5.018)	(-5.030)	(-4.882)
TANGIBILITY	0.011*	0.013	0.012*	0.011*
	(1.919)	(1.336)	(1.941)	(1.810)
PROFITABILITY	0.004	0.011	0.004	0.003
	(0.527)	(0.850)	(0.750)	(0.372)
NET WORTH	-0.002	0.000	-0.003	-0.003
	(-0.256)	(0.114)	(-0.351)	(-0.312)
Constant	0.229***	0.292***	0.217***	0.268***
	(7.325)	(5.689)	(6.847)	(5.819)
Observations	85,030	51,018	102,036	68,024
Number of firms	17,006	17,006	17,006	17,006
Within-R^2	0.00976	0.0112	0.0144	0.0127
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
GIIPS-Year FE	No	No	Yes	Yes

The table presents coefficients from staggered difference-in-differences regressions. INTEREST, i.e., cost of debt, is the dependent variable. The sample is restricted to observations in the time window around the introduction of respective insolvency law reforms fostering corporate restructuring presented in column titles. Models (1) and (2) provide symmetrical time windows of two years and one year around the respective insolvency law reforms. TREATED is a dummy variable set to one for treatment firms, and zero otherwise. Treated firms are firms from EU15 countries that implemented an insolvency law reform fostering corporate restructuring between 2008 and 2014. Control firms are from EU15 countries that did not implement any insolvency law reform over the same period and are matched based on the included control variables and exact industry. POST is a dummy variable set to one in and after the introduction year of each reform. All models are firm and year fixed effects regressions. Models (3) and (4) include additional country-year fixed effects for countries especially concerned by the implications of the financial and European sovereign debt crisis, i.e., Greece, Italy, Ireland, Portugal and Spain (GIIPS countries). T-statistics based on Huber/White robust standard errors clustered by country are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A description of all variables can be found in Appendix E.

significant impact on the chosen control variables.

I investigate whether my results hold when varying the set of control variables included in the staggered DiD design. The respective models and results are presented in Table 4.11. To alleviate concerns that time-varying country-specific differences drive my results I include an additional set of time-varying country-specific control variables to the original specification in models (1) and (2). GDP GROWTH is defined as the difference in GDP versus the previous year divided by the GDP in the previous year, STOCK MARKET as the stock market size divided by GDP, and INFLATION corresponds the country's inflation rate. I find that the coefficient of the interaction term remains positive, of a similar magnitude and statistically significant. In models (3) and (4) I include a measure for firm credit risk to address the concern that time-varying firm-specific financing conditions impact my results. IC RATIO corresponds to the interest coverage ratio and is defined as operating profit divided by interest paid. Again, the coefficient of the interaction term remains positive, of a similar magnitude and statistically significant. I conclude, that my results are robust to different sets of control variables.

Additionally, I address potential bias resulting from the chosen sample and present results from regressions using alternative samples in Table 4.12. First, I test whether the presence of public firms biases my results and restrict the sample to private firms only in model (1).[7] Second, I address potential bias from having firms from one specific legal origin in the treatment group and no firms from the same legal origin in the control group (and vice versa). As a result, I exclude treated firms from German civil law countries together with their matched control firms from the sample in model (2). Consistently, in model (3) I exclude firms from English common law and Scandinavian civil law countries from the control group before propensity score matching. Third, I examine whether propensity score matching impacts my results, and therefore base model (4) on the unmatched sample. In all models the coefficient of the interaction term remains positive, of a similar magnitude and statistically significant. I conclude that my results are not driven by the chosen sample.

Finally, I question whether my results are driven by the two largest reforms in the sample

[7] In unreported analyses, I find that my results are robust when controlling for firms accounting standards.

Table 4.9.: Financial leverage: Anticipation and pre-event trends.

Model	(1)	(2)
Reform window	[-3;+2]	[-3;+2]
Dep. variable:	INTEREST	
TREATED x Bef3	**omitted**	**omitted**
	-	**-**
TREATED x Bef2	**0.000**	**0.000**
	(0.066)	**(0.202)**
TREATED x Bef1	**0.003**	**0.003**
	(0.904)	**(0.977)**
TREATED x T0	**0.006****	**0.006****
	(2.417)	**(2.318)**
TREATED x Aft1	**0.007*****	**0.007****
	(3.396)	**(3.025)**
TREATED x Aft2	**0.007****	**0.006****
	(2.693)	**(2.258)**
LEVERAGE		-0.015
		(-1.415)
SIZE		-0.009***
		(-5.016)
TANGIBILITY		0.012*
		(1.932)
PROFITABILITY		0.005
		(0.797)
NET WORTH		-0.003
		(-0.347)
Constant	0.044***	0.208***
	(12.424)	(6.663)
Observations	102,036	102,036
Number of firms	17,006	17,006
Within-R^2	0.0104	0.0144
Firm FE	Yes	Yes
Year FE	Yes	Yes

The table presents coefficients from staggered difference-in-differences regressions. INTEREST, i.e., cost of debt, is the dependent variable. The sample is restricted to observations in the time window around the introduction of respective insolvency law reforms fostering corporate restructuring presented in column titles. TREATED is a dummy variable set to one for treatment firms, and zero otherwise. Treated firms are firms from EU15 countries that implemented an insolvency law reform fostering corporate restructuring between 2008 and 2014. Control firms are from EU15 countries that did not implement any insolvency law reform over the same period and are matched based on the included control variables and exact industry. Instead of a POST dummy, time dummies from three years before to two years after the respective reforms are used. All models are firm and year fixed effects regressions. T-statistics based on Huber/White robust standard errors clustered by country are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A description of all variables can be found in Appendix E.

Table 4.10.: Interest: Falsification tests.

Model	(1)	(2)	(3)	(4)	(5)
Reform window	[-3;+2]	[-3;+2]	[-3;+2]	[-3;+2]	[-3;+2]
Dep. variable:	LEV.	SIZE	TANG.	PROFIT.	NET W.
TREATED x POST	**-0.001**	**-0.040**	**0.007**	**-0.004**	**-0.001**
	(-0.511)	**(-1.397)**	**(1.530)**	**(-1.723)**	**(-0.960)**
INTEREST	-0.018	-0.312***	0.038*	0.008	-0.004
	(-1.412)	(-5.027)	(1.861)	(0.729)	(-0.355)
LEVERAGE		0.204	0.269***	-0.168***	-0.973***
		(1.775)	(10.850)	(-14.544)	(-159.783)
SIZE	0.007*		0.014***	0.006**	0.006**
	(2.098)		(4.893)	(2.621)	(2.692)
TANGIBILITY	0.107***	0.166***		-0.048***	0.173***
	(8.159)	(5.222)		(-5.324)	(12.898)
PROFITABILITY	-0.118***	0.113**	-0.085***		-0.029***
	(-12.152)	(2.249)	(-3.702)		(-3.564)
NET WORTH	-0.759***	0.143*	0.339***	-0.032***	
	(-40.960)	(2.067)	(23.454)	(-3.440)	
Constant	0.710***	18.118***	-0.132**	0.122**	0.729***
	(11.890)	(158.439)	(-2.504)	(2.706)	(18.980)
Observations	102,036	102,036	102,036	102,036	102,036
Number of firms	17,006	17,006	17,006	17,006	17,006
Within-R^2	0.755	0.142	0.0734	0.0611	0.756
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes

The table presents coefficients from staggered difference-in-differences regressions. In models (1) to (5) the respective dependent variable is LEVERAGE, SIZE, TANGIBILITY, PROFITABILITY and NET WORTH. The sample is restricted to observations in the time window around the introduction of respective insolvency law reforms fostering corporate restructuring presented in column titles. TREATED is a dummy variable set to one for treatment firms, and zero otherwise. Treated firms are firms from EU15 countries that implemented an insolvency law reform fostering corporate restructuring between 2008 and 2014. Control firms are from EU15 countries that did not implement any insolvency law reform over the same period and are matched based on the included control variables and exact industry. POST is a dummy variable set to one in and after the introduction year of each reform. All models are firm and year fixed effects regressions. T-statistics based on Huber/White robust standard errors clustered by country are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A description of all variables can be found in Appendix E.

Table 4.11.: Interest: Additional control variables.

Model	(1)	(2)	(3)	(4)
Reform window	[-3;+2]	[-2;+1]	[-3;+2]	[-2;+1]
Dep. variable:		INTEREST		
TREATED x POST	**0.006*** (8.423)**	**0.005*** (3.767)**	**0.004*** (3.477)**	**0.003* (2.037)**
LEVERAGE	-0.007	-0.020**	-0.023*	-0.038***
	(-0.755)	(-3.120)	(-2.012)	(-3.389)
SIZE	-0.009***	-0.010***	-0.010***	-0.011***
	(-4.971)	(-4.734)	(-5.582)	(-4.831)
TANGIBILITY	0.017**	0.015*	0.008	0.009
	(2.777)	(2.203)	(1.325)	(1.519)
PROFITABILITY	0.009***	0.010*	0.017**	0.016
	(3.173)	(2.163)	(2.454)	(1.733)
NET WORTH	0.002	0.001	-0.005	-0.006
	(0.250)	(0.121)	(-0.651)	(-0.643)
GDP GROWTH	0.028***	0.013**		
	(4.341)	(2.661)		
STOCK MARKET	-0.000	0.000		
	(-1.323)	(0.081)		
INFLATION	-0.054	-0.168*		
	(-0.815)	(-2.000)		
IC RATIO			-0.000***	-0.000***
			(-6.009)	(-6.814)
Constant	0.198***	0.246***	0.233***	0.284***
	(6.448)	(5.717)	(7.238)	(5.914)
Observations	94,494	62,996	98,194	65,570
Number of firms	15,749	15,749	16,913	16,860
Within-R^2	0.0151	0.0127	0.0269	0.0238
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

The table presents coefficients from staggered difference-in-differences regressions. INTEREST, i.e., cost of debt, is the dependent variable. The sample is restricted to observations in the time window around the introduction of respective insolvency law reforms fostering corporate restructuring presented in column titles. Models (1) and (2) add a set of time-varying country-specific control variables to the original specification. Models (3) and (4) additionally include the IC RATIO in the set of control variables. TREATED is a dummy variable set to one for treatment firms, and zero otherwise. Treated firms are firms from EU15 countries that implemented an insolvency law reform fostering corporate restructuring between 2008 and 2014. Control firms are from EU15 countries that did not implement any insolvency law reform over the same period and are matched based on the included control variables and exact industry. POST is a dummy variable set to one in and after the introduction year of each reform. All models are firm and year fixed effects regressions. T-statistics based on Huber/White robust standard errors clustered by country are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A description of all variables can be found in Appendix E.

Table 4.12.: Interest: Sample variation.

Model	(1)	(2)	(3)	(4)
Sample	Only private	Treated restriction	Control restriction	No matching
Reform window	[-3;+2]	[-3;+2]	[-3;+2]	[-3;+2]
Dep. variable:	INTEREST			
TREATED x POST	**0.004*** (3.279)**	**0.005*** (4.628)**	**0.005*** (4.287)**	**0.005*** (3.173)**
LEVERAGE	-0.012	-0.015*	-0.017	-0.011
	(-1.193)	(-1.958)	(-1.379)	(-1.596)
SIZE	-0.009***	-0.007***	-0.009***	-0.004***
	(-4.365)	(-5.242)	(-3.839)	(-3.338)
TANGIBILITY	0.014**	0.017**	0.007	0.017***
	(2.532)	(3.144)	(1.162)	(3.470)
PROFITABILITY	0.003	0.009**	0.007	0.007*
	(0.457)	(2.662)	(1.162)	(1.915)
NET WORTH	0.001	0.000	-0.003	-0.005*
	(0.179)	(0.049)	(-0.273)	(-2.017)
Constant	0.202***	0.175***	0.222***	0.118***
	(4.936)	(5.826)	(5.697)	(4.391)
Observations	91,644	101,268	60,900	160,328
Number of firms	15,274	16,878	10,150	20,192
Within-R^2	0.0156	0.0159	0.0149	0.0151
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

The table presents coefficients from staggered difference-in-differences regressions. INTEREST, i.e., cost of debt, is the dependent variable. The sample is restricted to observations in the time window around the introduction of respective insolvency law reforms fostering corporate restructuring presented in column titles. In model (1) the sample is further restricted to private firms only. Model (2) excludes treated firms from countries with a German civil law system and matched control firms. In model (3) control firms from countries with an English common law or Scandinavian civil law system are dropped from the sample before propensity score matching. Model (4) is based on a sample without any matching between treatment and control firms. TREATED is a dummy variable set to one for treatment firms, and zero otherwise. Treated firms are firms from EU15 countries that implemented an insolvency law reform fostering corporate restructuring between 2008 and 2014. Control firms are from EU15 countries that did not implement any insolvency law reform over the same period and are matched based on the included control variables and exact industry. POST is a dummy variable set to one in and after the introduction year of each reform. All models are firm and year fixed effects regressions. T-statistics based on Huber/White robust standard errors clustered by country are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A description of all variables can be found in Appendix E.

(see Table 4.4): the German reform of 2011 and the Italian reform of 2012. Therefore, I successively drop the corresponding treated and matched control firms from the sample. The results are presented in models (1) and (2) as well as models (3) and (4) from Table 4.13, respectively. Again, the coefficient of the interaction term remains positive, of a similar magnitude and statistically significant. Therefore, I conclude that my results are not driven by the two largest reforms in the sample.

4.5.3. Further implications

Following general intuition, I expect results to be less pronounced for firms far from default and more pronounced for firms closer to default. Therefore, I divide my sample in terciles with respect to firms' ALTMAN Z score in the introduction year of each reform (Altman, 1968). Table 4.14 presents the corresponding results. In models (1) and (2) I provide results with a sample of firms far from insolvency, i.e., the top tercile of firms based on ALTMAN Z. In models (3) and (4) I show results based on a sample of firms closer to insolvency, i.e., the bottom tercile of firms with respect to ALTMAN Z. Consistent with predictions, the coefficient of the interaction term is insignificant for firms far from insolvency while being positive, of a higher magnitude around 0.8% or 80 basis points and a similar statistical significance. I conclude that my main results are consistent with the widespread intuition, that firms far from insolvency are less likely to substantially react to changes in the insolvency law.

Besides firms' cost of debt, I also investigate if the increased focus on corporate restructuring and the resulting increase in firms' cost of debt affected firms' financial leverage. Specifically, I test whether there is a difference in the observed steady declining parallel trend of treatment and control groups over the considered period as observed in Figure 4.4. Corresponding results are shown in Table 4.15. I find that in all models the coefficient of the interaction term is slightly negative but statistically insignificant. These results suggest that, even though firms' cost of debt increased following the reforms, firms decided to keep their financial leverage constant.

To further understand this effect, I investigate if the increased focus on corporate restruc-

Table 4.13.: Interest: Selective reform exclusion.

Model	(1)	(2)	(3)	(4)
Reform excluded	Without Germany (2011)		Without Italy (2012)	
Reform window	[-3;+2]	[-2;+1]	[-3;+2]	[-2;+1]
Dep. variable:	INTEREST			
TREATED x POST	**0.004*** (3.853)**	**0.004*** (3.327)**	**0.005*** (3.818)**	**0.005** (2.807)**
LEVERAGE	-0.017	-0.035**	-0.015	-0.027**
	(-1.520)	(-2.690)	(-1.706)	(-2.401)
SIZE	-0.009***	-0.012***	-0.008***	-0.012***
	(-3.783)	(-3.846)	(-4.121)	(-4.471)
TANGIBILITY	0.008	0.013	0.015*	0.011
	(1.587)	(1.626)	(1.804)	(1.398)
PROFITABILITY	0.008	0.005	0.002	-0.003
	(1.284)	(0.580)	(0.407)	(-0.293)
NET WORTH	-0.005	-0.009	-0.002	0.002
	(-0.551)	(-0.895)	(-0.264)	(0.197)
Constant	0.210***	0.292***	0.205***	0.288***
	(5.519)	(4.799)	(5.053)	(5.715)
Observations	66,132	44,088	66,600	44,400
Number of firms	11,022	11,022	11,100	11,100
Within-R^2	0.0155	0.0155	0.0168	0.0138
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

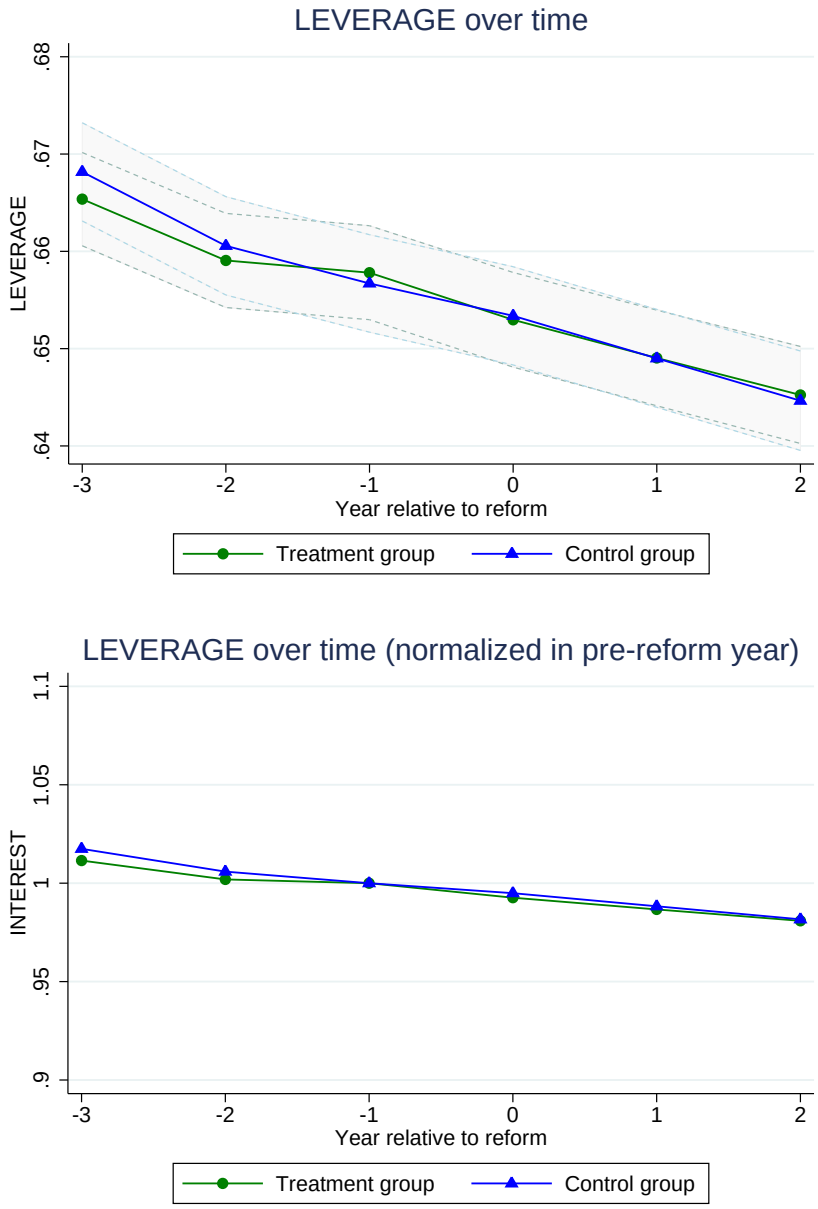
The table presents coefficients from staggered difference-in-differences regressions. INTEREST, i.e., cost of debt, is the dependent variable. The sample is restricted to observations in the time window around the introduction of respective insolvency law reforms fostering corporate restructuring presented in column titles. In models (1) and (2) observations associated with the largest legal reform in the sample, the German reform of 2011, are excluded. In models (3) and (4) observations associated with the second largest legal reform in the sample, the Italian reform of 2012, are excluded. TREATED is a dummy variable set to one for treatment firms, and zero otherwise. Treated firms are firms from EU15 countries that implemented an insolvency law reform fostering corporate restructuring between 2008 and 2014. Control firms are from EU15 countries that did not implement any insolvency law reform over the same period and are matched based on the included control variables and exact industry. POST is a dummy variable set to one in and after the introduction year of each reform. All models are firm and year fixed effects regressions. T-statistics based on Huber/White robust standard errors clustered by country are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A description of all variables can be found in Appendix E.

Table 4.14.: Interest: Distance to default.

Model	(1)	(2)	(3)	(4)
Sample	Far from default		Close to default	
Reform window	[-3;+2]	[-2;+1]	[-3;+2]	[-2;+1]
Dep. variable:	INTEREST			
TREATED x POST	**0.002**	**-0.000**	**0.008*** **	**0.007** **
	(0.729)	**(-0.007)**	**(3.484)**	**(2.705)**
LEVERAGE	-0.032	-0.062**	0.002	-0.019
	(-1.576)	(-2.528)	(0.104)	(-0.953)
SIZE	-0.011**	-0.010**	-0.010**	-0.016***
	(-2.576)	(-2.491)	(-2.941)	(-3.209)
TANGIBILITY	0.013	0.010	0.019**	0.006
	(1.120)	(0.767)	(2.847)	(0.816)
PROFITABILITY	-0.011	0.000	0.004	-0.002
	(-0.850)	(0.005)	(0.465)	(-0.163)
NET WORTH	-0.016	-0.020	0.000	-0.007
	(-0.932)	(-1.101)	(0.003)	(-0.291)
Constant	0.275***	0.261***	0.214***	0.358***
	(4.129)	(3.523)	(3.559)	(4.552)
Observations	26,268	17,512	26,274	17,516
Number of firms	4,378	4,378	4,379	4,379
Within-R^2	0.0108	0.0123	0.0219	0.0204
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

The table presents coefficients from staggered difference-in-differences regressions. INTEREST, i.e., cost of debt, is the dependent variable. The sample is restricted to observations in the time window around the introduction of respective insolvency law reforms fostering corporate restructuring presented in column titles. In models (1) and (2) I further restrict the sample to firms far from insolvency, i.e., the top tercile of firms based on ALTMAN Z. In models (3) and (4) I further restrict the sample to firms close to insolvency, i.e., the bottom tercile of firms based on ALTMAN Z. TREATED is a dummy variable set to one for treatment firms, and zero otherwise. Treated firms are firms from EU15 countries that implemented an insolvency law reform fostering corporate restructuring between 2008 and 2014. Control firms are from EU15 countries that did not implement any insolvency law reform over the same period and are matched based on the included control variables and exact industry. POST is a dummy variable set to one in and after the introduction year of each reform. All models are firm and year fixed effects regressions. T-statistics based on Huber/White robust standard errors clustered by country are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A description of all variables can be found in Appendix E.

Figure 4.4.: Development of mean leverage around respective reforms.



In order to work with yearly accounting data I select the year in which the respective insolvency law reforms were passed as a proxy for their introduction. Treated firms are firms from EU15 countries that implemented an insolvency law reform fostering corporate restructuring between 2008 and 2014. Control firms are from EU15 countries that did not implement any insolvency law reform over the same period and are matched based on the included control variables and exact industry. The first figure additionally provides for confidence intervals at the 95%-level. A description of all variables can be found in Appendix E.

Table 4.15.: Leverage: Staggered difference-in-differences regressions.

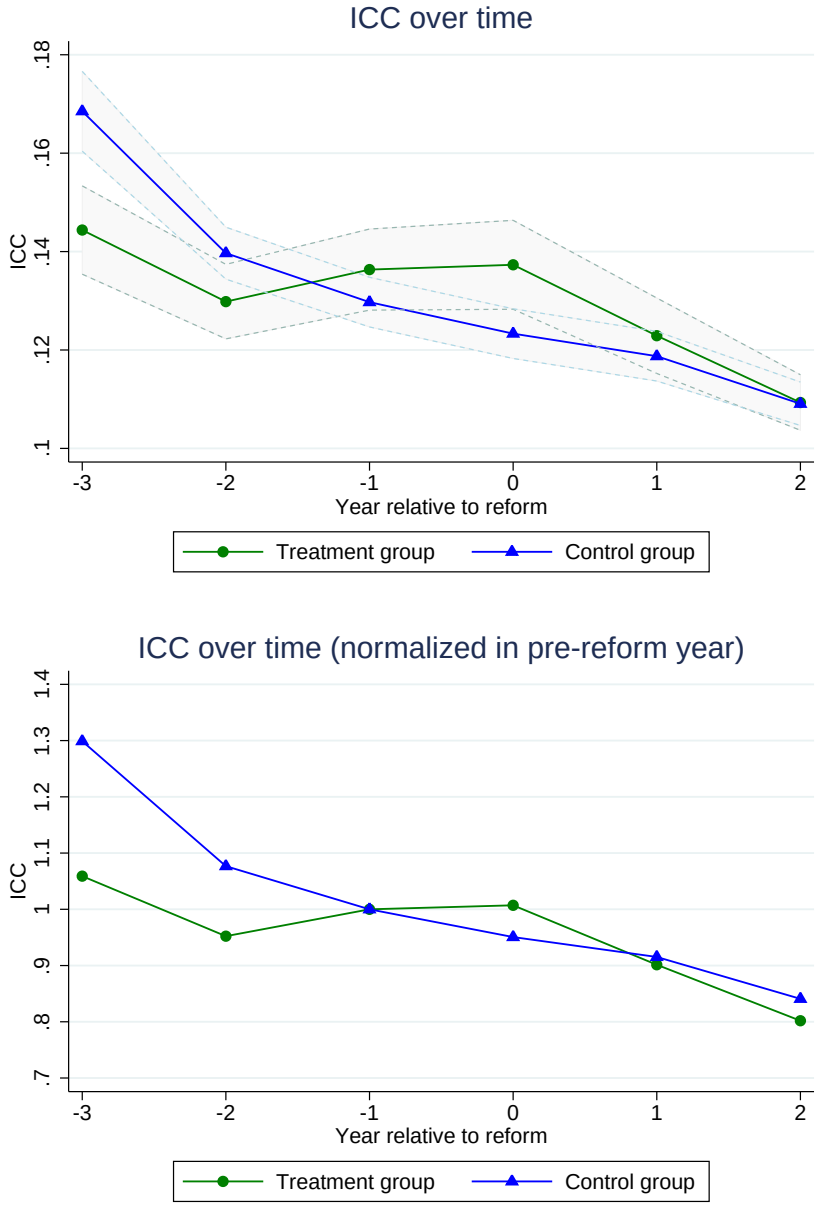
Model	(1)	(2)	(3)	(4)
Reform window	[-3;+2]	[-2;+1]	[-2;+2]	[-1;+1]
Dep. variable:		LEVERAGE		
TREATED x POST	**-0.000**	**-0.001**	**-0.001**	**-0.001**
	(-0.041)	**(-0.158)**	**(-0.146)**	**(-0.138)**
SIZE			0.009	0.016
			(0.861)	(1.611)
TANGIBILITY			-0.094***	-0.101***
			(-5.012)	(-4.317)
PROFITABILITY			-0.369***	-0.361***
			(-9.010)	(-7.867)
Constant	0.684***	0.673***	0.586***	0.456**
	(122.210)	(65.943)	(3.077)	(2.536)
Observations	102,036	68,024	102,036	68,024
Number of firms	17,006	17,006	17,006	17,006
Within-R^2	0.00820	0.00434	0.0625	0.0631
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

The table presents coefficients from staggered difference-in-differences regressions. LEVERAGE is the dependent variable. The sample is restricted to observations in the time window around the introduction of respective insolvency law reforms fostering corporate restructuring presented in column titles. TREATED is a dummy variable set to one for treatment firms, and zero otherwise. Treated firms are firms from EU15 countries that implemented an insolvency law reform fostering corporate restructuring between 2008 and 2014. Control firms are from EU15 countries that did not implement any insolvency law reform over the same period and are matched based on the included control variables and exact industry. POST is a dummy variable set to one in and after the introduction year of each reform. All models are firm and year fixed effects regressions. T-statistics based on Huber/White robust standard errors clustered by country are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A description of all variables can be found in Appendix E.

turing affected firms' internal cost of capital in a similar way that it impacted their costs of debt. Therefore, I augment my sample with historical data on firms' internal cost of capital with the help of a proprietary database from the Chair of Financial Management and Capital Markets at the Technische Universität München as well as with historical market data from Worldscope. The results from corresponding staggered DiD regressions are presented in Table 4.16. Figure 4.5 shows that the parallel trend assumption is not violated. ICC is the average of the respective internal cost of capital measures defined by Claus and Thomas (2001), Gebhardt et al. (2001), Ohlson and Juettner-Nauroth (2005), Easton (2004) and Pástor et al. (2008). Consistent with the literature, I account for analyst sluggishness and lag ICC measures by three months (Guay et al., 2011). BOOK TO MARKET is defined as total shareholder funds divided by market equity. I find that in all models the coefficient of the interaction term is slightly positive but statistically insignificant. Therefore, I conclude that the fostering of corporate restructuring did not impact firms' costs of equity. This result suggests that, in contrast to creditors, shareholders seem to be indifferent with respect to corporate restructuring. On a side note, Appendix F shows that, when restricting the sample to the ICC sample, previous results regarding firms' cost of debt hold with respect to their sign, magnitude and statistical significance .

Overall, results regarding firms' cost of debt, financial leverage and cost of equity suggest that creditors may fear an increase in the restructuring of non-viable firms, and therefore demand higher risk premia to cover additional agency and opportunity costs. This effect is even more pronounced when firms are considered closer to insolvency, and therefore present an increased default risk. By contrast, firms and their managers seem to be willing to pay the price for this shift of power to their favor. Their expected benefits from being able to engage in the restructuring of non-viable firms and benefit from protection against creditor enforcement may outweigh increased cost of debt. Finally, shareholders seem to be indifferent with respect to corporate restructuring, as their chances of receiving additional proceeds after the insolvency procedure may not be impacted in a substantial way.

Figure 4.5.: Development of mean internal cost of capital around respective reforms.



In order to work with yearly accounting data I select the year in which the respective insolvency law reforms were passed as a proxy for their introduction. Treated firms are firms from EU15 countries that implemented an insolvency law reform fostering corporate restructuring between 2008 and 2014. Control firms are from EU15 countries that did not implement any insolvency law reform over the same period and are matched based on the included control variables and exact industry. The first figure additionally provides for confidence intervals at the 95%-level. A description of all variables can be found in Appendix E.

Table 4.16.: Internal cost of capital: Staggered difference-in-differences regressions.

Model	(1)	(2)	(3)	(4)
Reform window	[-3;+2]	[-2;+1]	[-2;+2]	[-1;+1]
Dep. variable:			ICC	
TREATED x POST	**-0.000**	**0.002**	**0.002**	**0.000**
	(-0.044)	**(0.390)**	**(0.358)**	**(0.035)**
LEVERAGE	0.057	0.042	0.065	0.035
	(1.656)	(1.272)	(1.671)	(0.604)
SIZE	-0.000	-0.026**	-0.000	-0.031
	(-0.060)	(-2.464)	(-0.006)	(-1.640)
PROFITABILITY	-0.073	-0.087	-0.041	-0.065
	(-1.505)	(-1.814)	(-0.949)	(-0.803)
BOOK TO MARKET	0.000***	0.000***	0.000**	0.000
	(3.677)	(3.350)	(2.926)	(1.366)
GDP GROWTH	-0.152***	-0.084**	-0.106**	-0.243**
	(-4.621)	(-2.346)	(-2.682)	(-3.146)
INFLATION	0.033	0.316	0.251	-0.182
	(0.078)	(0.785)	(0.594)	(-0.317)
Constant	0.117	0.603**	0.093	0.755*
	(1.394)	(3.126)	(0.488)	(2.193)
Observations	4,851	3,249	4,053	2,427
Number of firms	982	950	966	898
Within-R^2	0.169	0.0863	0.106	0.0985
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

The table presents coefficients from staggered difference-in-differences regressions. ICC, i.e., the internal cost of capital, is the dependent variable. The sample is restricted to observations in the time window around the introduction of respective insolvency law reforms fostering corporate restructuring presented in column titles. TREATED is a dummy variable set to one for treatment firms, and zero otherwise. Treated firms are firms from EU15 countries that implemented an insolvency law reform fostering corporate restructuring between 2008 and 2014. Control firms are from EU15 countries that did not implement any insolvency law reform over the same period and are matched based on the included control variables and exact industry. POST is a dummy variable set to one in and after the introduction year of each reform. All models are firm and year fixed effects regressions. T-statistics based on Huber/White robust standard errors clustered by country are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A description of all variables can be found in Appendix E.

4.6. Conclusion

In this paper, I exploit the staggered enactment of eight insolvency law reforms fostering corporate restructuring in the EU15 countries after 2008 to show that an emphasis on corporate restructuring increases firms' cost of debt. Specifically, I posit that, by increasing incentives to restructure, the insolvency regime might encourage restructuring of non-viable firms, and therefore lead to higher agency and opportunity costs from the creditor's perspective. As a result, creditors may demand higher risk premia to compensate for increased risks and costs.

Following the financial crisis of 2008 and the subsequent European sovereign debt crisis of 2009, EU15 countries have reformed their insolvency law in order to help viable firms restructure. While the reforms may have varied with respect to their scope, exact formulations and timing, they all shared the common objective of establishing a legal regime encouraging firms to forgo liquidation in favor of corporate restructuring. From an econometric point of view, I can use the staggered introduction of these insolvency law reforms for identification. This allows me to identify the causal impact of a country's increased corporate restructuring focus on firms' cost of debt.

After treatment, I observe that firms in countries which have introduced insolvency law reforms fostering corporate restructuring experienced an average increase in the cost of debt of 0.5% or 50 basis points compared to firms in countries that have not introduce any insolvency law reforms over the same period. Further analysis reveals that the effect is even more pronounced for firms closer to default while vanishing for firms far from default. Finally, I find evidence that the introduction of the same insolvency law reforms did not impact firms' financial leverage and cost of equity.

Overall, the results suggest that creditors may fear an increase in the restructuring of non-viable firms, and therefore demand higher risk premia to cover additional agency and opportunity costs. By contrast, firms and their managers seem to be willing to pay the price for this shift of power to their favor. Their expected benefits from being able to engage in the restructuring of non-viable firms and benefit from protection against creditor enforcement may outweigh increased cost of debt. Finally, shareholders seem

to be indifferent with respect to corporate restructuring, as their chances of receiving additional proceeds after the insolvency procedure may not be impacted in a substantial way.

This article has important implications for firms, creditors and policymakers in the EU15 but also around the world. In the past, many countries have initiated a transition of their insolvency law towards an US-like restructuring regime (Franken, 2004; Closset, 2017). In contrast, I present results suggesting that the fostering of corporate restructuring might also bring negative implications to firms, especially when they are closer to default. By increasing incentives to restructure, the insolvency regime might also encourage restructuring of non-viable firms, and therefore lead to higher agency and opportunity costs from the creditor's perspective. Overall, the evidence suggests that it is important to set the right incentives for corporate restructuring, and therefore highlights the importance of well-balanced insolvency law.

5. Conclusion

Under financial distress, insolvency law regulates the competition among the firm's stakeholders over its assets (Aghion et al., 1994). Consequently, in general equilibrium, the resulting balance of power between the firm and its stakeholders determines the degree of satisfaction that each stakeholder can expect, and thus their ex-ante behavior (Fudenberg and Tirole, 1990; Hart, 2001; Bebchuk, 2002). In this dissertation, I examine three research questions related to the impact of insolvency law on corporate finance, especially the balance of power between the firm and its stakeholders. The first study summarizes current findings by the law and finance literature and reviews the status quo of insolvency law and its past development in a set of selected countries. The second study is related to insolvency law and its influence on corporate financing decisions. Specifically, I examine a legal reform of the balance of power between firms and their stakeholders and measure its effect on firms' capital structures. Finally, the third study shifts the focus towards specific features of the insolvency law and their impact on corporate cost of finance. Precisely, I study reforms aiming at fostering corporate restructuring and assess their implications for firms' cost of debt.

5.1. Main results

5.1.1. Corporate Insolvency Law & Finance: Past, Present and Future

In the first study of this dissertation, I summarize the existing law and finance literature and interpret its theoretical considerations, main empirical findings, and substantial criticism. Furthermore, I include a review of insolvency law and its main reforms in 20 selected countries including the EU15, BRIC and USA. I base this review on a new dataset

providing information on: (i) the status quo of insolvency law in each country as of 2015; (ii) 42 main insolvency law reforms enacted from 1985 to 2015.

This study is particularly relevant for firms and their stakeholders when making decisions, but more generally also for the overall economic system since insolvency remains an important issue to governments and policymakers. In general, insolvency law aims at regulating the competition among the firm's stakeholders over its assets in the case of insolvency (Aghion et al., 1994). Its two main goals are to minimize ex-ante and ex-post inefficiencies by specifying the rights and the level of their protection assigned to the firm and its stakeholders (e.g., Hart, 1995; Cornelli and Felli, 1997; Hotchkiss et al., 2008). This results in a balance of power between the firm and its stakeholders, determining the degree of satisfaction they can expect in the case of failure (White, 2007), and thus defining their ex-ante behavior (e.g., Stiglitz and Weiss, 1981; Hart, 2001; Bebchuk, 2002).

To get a more detailed understanding on the balance of power between the firm and its stakeholders, I collect information on the insolvency law and on its main reforms for the 20 selected countries (EU15, BRIC and USA). I end up with a dataset providing information: (i) on the status quo of insolvency law as of 2015; (ii) on a total of 42 main insolvency law reforms enacted from 1985 to 2015. To the best of my knowledge, this dataset is unique with regards to the depth of the information gathered, the length of the time frame considered and the number of countries in scope. Descriptive analyses of this dataset suggest three main results. First, insolvency regimes in the sample differ in their insolvency law design and are nowadays still characterized by lengthy and costly insolvency procedures. Second, main insolvency law reforms within the period of 1985 to 2015 show that insolvency regimes in the sample tend to converge towards a restructuring regime that is similar to the one currently active in the USA (Franken, 2004). Third, there exists an observable trend towards the establishment of preventive restructuring proceedings in order to avoid lengthy and costly in-court proceedings.

Overall, these findings are consistent with the view that insolvency regimes around the world are expected to show a stronger convergence in the future (La Porta et al., 2008). The above-mentioned trends might even be further encouraged and accelerated since pro-

positions on optimal insolvency law design typically build their recommendations on US-like insolvency features and out-of-court proceedings (e.g., United Nations Commission on International Trade Law, 2005; European Commission, 2016).

5.1.2. The Balance of Power between Creditors and the Firm: Evidence from German Insolvency Law

In the second study, I exploit the exogenous passing and enactment of the latest reform to German insolvency law ("Gesetz zur weiteren Erleichterung der Sanierung von Unternehmen", short "ESUG") to show that a shift in the balance of power from shareholders to creditors can actually negatively affect firm borrowing. Specifically, I posit that, when filing for insolvency in a strong creditor protection regime like Germany, the firm and shareholders may fear the extent of power attributed to creditors. Therefore, firms may be reluctant to borrow in the first place.

ESUG mandated that insolvent firms that are at least medium-sized have to appoint a preliminary creditors' committee, which exerts strong influence on the appointment of the insolvency administrator. This rule does not apply to smaller firms and there is anecdotal evidence suggesting that smaller firms and insolvency courts refrain from complying voluntarily. As there is no other rule related to ESUG that applies to the same size threshold, I can perform a difference-in-differences analysis and compare the development of financial leverage of larger and smaller firms around the size threshold.

After treatment, I observe that firms above the size threshold reduced financial leverage relative to their counterparts by about five percentage points. Further analysis reveals that the reduction in financial leverage can be explained by a shift from debt to equity, and more specifically by the reduction of short-term leverage. The results are robust to: (i) the inclusion of different sets of firm, year, and industry-year fixed effects; (ii) robustness tests addressing threshold manipulation and sample firm size; (iii) placebo tests where I rely on an alternative time window and different size criteria. I also show that the parallel trends assumption is not violated.

Finally, I find evidence that smaller firms benefit from lower average interest rates after the

introduction of ESUG. I also show that larger firms reduce investment following ESUG. In contrast, smaller firms increase both leverage and investment in the aftermath of ESUG. Overall, the evidence is consistent with the view that greater creditor protection results in a more costly insolvency procedure from a shareholder perspective. To avoid further losses of control, firms try to avoid debt, which in turn hinders investment and ultimately firm growth. In contrast, smaller firms may have benefited from the introduction of a preliminary creditors' committee as it may have increased available debt supply because demand by larger firms has decreased.

5.1.3. Creditors and Corporate Restructuring? Evidence from European Insolvency Law

In the third and last study, I exploit the staggered enactment of eight insolvency law reforms fostering corporate restructuring in the EU15 countries after 2008 to show that an emphasis on corporate restructuring increases firms' cost of debt. Specifically, I posit that, by increasing incentives to restructure, the insolvency regime might encourage restructuring of non-viable firms, and therefore lead to higher agency and opportunity costs from the creditor's perspective. As a result, creditors may demand higher risk premia to compensate for increased risks and costs.

Following the financial crisis of 2008 and the subsequent European sovereign debt crisis of 2009, EU15 countries have reformed their insolvency law in order to help viable firms restructure. While the reforms may have varied with respect to their scope, exact formulations and timing, they all shared the common objective of establishing a legal regime encouraging firms to forgo liquidation in favor of corporate restructuring. From an econometric point of view, I can use the staggered introduction of these insolvency law reforms for identification. This allows me to identify the causal impact of a country's increased corporate restructuring focus on firms' cost of debt.

After treatment, I observe that firms in countries which have introduced insolvency law reforms fostering corporate restructuring experienced an average increase in the cost of debt of 0.5% or 50 basis points compared to firms in countries that have not introduce any

insolvency law reforms over the same period. Further analysis reveals that the effect is even more pronounced for firms closer to default while vanishing for firms far from default. Finally, I find evidence that the introduction of the same insolvency law reforms did not impact firms' financial leverage and cost of equity.

Overall, the results suggest that creditors may fear an increase in the restructuring of non-viable firms, and therefore demand higher risk premia to cover additional agency and opportunity costs. By contrast, firms and their managers seem to be willing to pay the price for this shift of power to their favor. Their expected benefits from being able to engage in the restructuring of non-viable firms and benefit from protection against creditor enforcement may outweigh increased cost of debt. Finally, shareholders seem to be indifferent with respect to corporate restructuring, as their chances of receiving additional proceeds after the insolvency procedure may not be impacted in a substantial way.

5.2. Contribution and implications

Overall the dissertation contributes to a better understanding of the relationship between law and finance, specifically the role of insolvency law in shaping corporate finance. First, based on the analysis of a new dataset on insolvency law and its main reforms, I find that insolvency regimes: (i) differ in their legal design and are characterized by lengthy and costly procedures; (ii) tend to converge towards a restructuring regime that is similar to the one in the USA; (iii) exhibit a trend towards preventive restructuring proceedings avoiding lengthy and costly in-court proceedings. In doing so, I add to the literature of law and finance in general. So far, a vast majority of scholars has relied on empirical proxies proposed by La Porta et al. (1998) and cross-sectional analyses of the legal status quo to study the relationship between law and finance (e.g., La Porta et al., 1998; Levine, 1998, 1999; Demirgüç-Kunt and Levine, 2004; Djankov et al., 2007, 2008a,b; La Porta et al., 2008). In contrast to them, I present a detailed study of cross-country insolvency law and its development by means of legal reform. By leaving empirical proxies aside and collecting time series data, I am able to identify global trends in insolvency law and

distinguish policy effects on a more granular level. Consequently, this dissertation not only has important implications for governments and policymakers, but also for scholars in the field of law and finance.

Second, based on the enactment of the latest German insolvency law reform, I show that in an environment where creditors are already well protected, even stronger creditor protection does not necessarily foster borrowing. By doing so, I add to the literature studying the influence of creditor rights on credit markets (e.g., Djankov et al., 2007; Haselmann et al., 2010; Deakin et al., 2015). Furthermore, the findings contribute to the literature on the determinants of capital structure (e.g., Rajan and Zingales, 1995) by showing that changes in adverse selection costs as a result of better creditor protection affect a firm's capital structure. Finally, this work is related to theoretical frameworks by Jensen and Meckling (1976), Leland and Pyle (1977), or Myers and Majluf (1984). In this regard, my dissertation has an important implication. Most of the literature on creditor protection argues that better creditor protection increases debt supply (e.g., La Porta et al., 1997, 1998; Levine, 1998, 1999; Djankov et al., 2007; La Porta et al., 2008). In contrast, I show that, even though credit supply may increase due to lower adverse selection costs to creditors, firms may actually forgo debt capital because together with their shareholders they may fear the extent of creditor power when creditors are too well protected. Overall, the evidence suggests that there may be a optimal level of creditor protection, and that beyond a certain threshold, debt becomes too costly for shareholders, which is why they may become reluctant to borrow.

Third, based on the staggered enactment of insolvency law reforms fostering corporate restructuring, I find that creditors may fear an increase in the restructuring of non-viable firms after these reforms, and therefore demand higher risk premia to compensate for increased agency and opportunity costs. Thereby, I add to the literature studying the relationship between legal provisions and firms' cost of financing (Scott and Smith, 1986; Araujo et al., 2012; Vig, 2013; Hackbarth et al., 2015; Rodano et al., 2016). Furthermore, I complement the literature analyzing direct (Weiss, 1990; Franks and Torous, 1994; Bris et al., 2006) and indirect costs of the insolvency procedure (Levine, 1998, 1999; Franks

and Sussman, 2005; Qian and Strahan, 2007; Djankov et al., 2007, 2008a; Bae and Goyal, 2009; Benmelech and Bergman, 2011) by showing that an increase in firms' cost of debt following reforms of corporate restructuring might reflect higher agency costs and opportunity costs from the creditor's perspective. Finally, I add to the theoretical literature on optimal insolvency law and corporate restructuring (White, 1989; Fudenberg and Tirole, 1990; Gertner and Scharfstein, 1991; Aghion et al., 1994; Hart, 1995; Cornelli and Felli, 1997; Hart and Moore, 1998; Hart, 2000, 2001; Hotchkiss et al., 2008). Consequently, this dissertation has important implications for firms, creditors and policymakers in the EU15 but also around the world. In the past, many countries have initiated a transition of their insolvency law towards a US-like restructuring regime (Franken, 2004; Closset, 2017). In contrast, I present results suggesting that the fostering of corporate restructuring might also bring negative implications to firms, especially when they are closer to default. By increasing incentives to restructure, the insolvency regime might also encourage restructuring of non-viable firms, and therefore lead to higher agency and opportunity costs from the creditor's perspective. Overall, the evidence suggests that it is important to set the right incentives for corporate restructuring, and therefore highlights the importance of well-balanced insolvency law.

5.3. Avenues for future research

The findings of the three studies in this dissertation open several avenues for future research. First, I highlight differences between current insolvency regimes in the world. Even though there exist theories like, e.g., the theory of legal origins (Merryman, 1985; David and Brierley, 1985; Reynolds and Flores, 1989; Zweigert and Kötz., 1998), it would be interesting to get an even more detailed understanding of the underlying reasons. For example, why are countries developing towards a restructuring regime that is similar to the one in the USA? This question is especially important given that scholars are often critical of the US restructuring system and its outcome (e.g., Bris et al., 2006). One possible explanation might be that political forces shape the insolvency regime in such way that it focuses less on the satisfaction of individual financial actors, but rather acts as a

screening mechanism, separating financially distressed but economically viable firms from inefficient, non-viable ones.

Second, I find that specific features of the insolvency law design impact firms' leverage and their cost of debt. Given these results, it would be interesting to understand further implications for corporate finance. For example, how are capital flows reacting to changing insolvency law? Are countries that develop towards stronger creditor protection able to attract more foreign investments? And consequently, is firm value to some extent depending on the insolvency law design? To this end, one could, for example, investigate cross-border mergers and acquisitions around legal reforms of the insolvency law in the spirit of Bris and Cabolis (2008).

Third and finally, when analyzing reforms of the insolvency law it would be interesting to further understand implications for the optimal design of insolvency law. Can policymakers reverse the effect of an insolvency law reform by implementing a legal reform implementing opposite provisions? What are key determinants that help to identify if specific provisions are better suited for one country rather than for another? How would financial markets and financial actors react to a radically new insolvency law design incorporating, e.g., automatic debt-to-equity swaps under financial distress?

Appendix

Appendix A. Summary of insolvency law

This Appendix provides a brief summary, in an alphabetical order, of the insolvency law for the 20 countries in the sample as of 2015. The 20 countries in the sample are: the EU15 countries with Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom (UK); the BRIC countries with Brazil, China, India, Russia; and the United States of America (USA). Since India reformed its insolvency law completely with the beginning of 2016, I exceptionally provide information on Indian insolvency law as of 2016.

Appendix A.1. Austria

Austrian insolvency law ("Insolvenzordnung") provides one insolvency procedure that can take two forms: restructuring ("Sanierungsverfahren") and liquidation ("Konkursverfahren") proceedings. In any case, the court will first appoint an administrator who is in charge of driving the proceedings and especially of setting up a creditors' meeting that decides upon the debtor's liquidation or its restructuring. Past transactions are subject to claw back by the administrator, particularly in case of fraud. Existing contractual agreements are under review and may be terminated by the administrator.

Restructuring proceedings can only be initiated by the debtor itself under imminent insolvency or over-indebtedness. Once restructuring proceedings have been opened, a stay on creditor enforcement with the exception of secured creditors is ordered. The debtor is in charge to elaborate a restructuring plan which has to ensure the repayment of at least 20% of the outstanding debt within two years. Approval of the restructuring

plan requires the approval by at least 50% of affected creditors and claims. The court-appointed administrator usually takes over from the debtor's management and drives the restructuring process. Should the restructuring plan foresee a repayment of at least 30% of the outstanding debt within two years, the debtor can apply for restructuring proceedings under self-administration. In this case, the debtor's management remains in place but stays under supervision of the appointed administrator who ensures regular reporting to the court and creditors.

Liquidation proceedings aim at monetizing the insolvent debtor's assets in order to satisfy creditors' claims. Liquidation proceedings can be initiated by the debtor or by one of its creditors once the debtor has become insolvent. Once liquidation proceedings have been opened, the administrator becomes a liquidator and a stay on creditor enforcement with the exception of secured creditors is ordered. Creditor claims are subject to claw back, particularly in case of fraudulent transactions. The liquidator's main tasks are to take over from the debtor's management, to liquidate the debtor's assets and to satisfy claims in the following order: expenses of the liquidation, secured creditors, preferred creditors, claims incurred during insolvency, unsecured creditors, shareholders.

Appendix A.2. Belgium

Belgian insolvency law distinguishes between restructuring ("loi relative à la continuité des entreprises") and liquidation proceedings ("loi sur les faillites"). Additionally, Belgian insolvency law provides for an out-of-court amicable settlement ("accord amiable") between the debtor and at least two of its creditors. In any case, upon the declaration of insolvency, existing agreements between the debtor and third parties are not automatically terminated. However, they can be terminated if deemed necessary. If it is decided to continue a contract, new obligations from this contract will be awarded priority. Past transactions are subject to claw back, particularly in case of fraud.

Restructuring proceedings may only be opened by the insolvent or imminently insolvent debtor and aim at the firm's financial rescue. While the debtor's management stays in place, it might be supported by a court-appointed trustee following the request of the

debtor or by one of its creditors. Once restructuring proceedings have been opened, the court orders a stay on creditor enforcement. New debt has to be served when due and would rank ahead of unsecured creditors in the case of unsuccessful restructuring. Restructuring proceedings may result in three different types of outcomes. First, the debtor can reach an amicable agreement under court supervision with at least two of its creditors ("judiciaire par accord amiable"). Second, a collective restructuring plan involving all creditors and requiring the approval by at least 50% of affected creditors and claims ("judiciaire par accord collectif") can be worked out. The plan may include composition agreements or debt-to-equity swaps. Third, a piecemeal or going-concern sale of the debtor ("judiciaire par transfert sous autorité de justice") may take place.

Liquidation proceedings aim at monetizing the insolvent debtor's assets in order to satisfy creditors' claims. Liquidation proceedings can be initiated by the debtor, its creditors or the public prosecutor once the debtor has become insolvent. Once insolvency proceedings have been opened, the court appoints a liquidator and orders a stay on creditor enforcement with exception of secured creditors. The liquidator's main tasks are to take over from the debtor's management, to liquidate the debtor's assets and to satisfy claims in the following order: secured creditors, expenses of the insolvency, claims incurred during insolvency proceedings, taxes, social security contributions, unpaid wages, unsecured creditors, shareholders.

Voluntary liquidation proceedings are an alternative to court-supervised liquidation proceeding if supported by the debtor's creditors. Shareholders appoint a liquidator to monetize the debtor's assets and distribute the proceeds to its creditors based on a court-approved distribution scheme.

Appendix A.3. Brazil

Brazilian insolvency law ("Nova Lei de Falências e Recuperação de Empresas") offers three types of proceedings in case of insolvency: extra-judicial restructuring, judicial restructuring and liquidation. Judicial and extra-judicial restructuring proceedings differ in the way that they either correspond to court-supervised or out-of-court restructuring. In any

case, upon the declaration of insolvency, existing agreements between the debtor and third parties are not automatically terminated. However, they can be terminated if deemed necessary. If it is decided to continue a contract, new obligations from this contract will be awarded priority. Past transactions are subject to claw back, particularly in case of fraud.

The main goal of judicial restructuring is to overcome financial difficulties in distressed but viable businesses. Judicial restructuring proceedings can only be initiated by the solvent debtor. Once restructuring proceedings have been opened, the court together with creditors appoints a trustee. The trustee's main task is to set up a restructuring plan, subject to approval by at least 50% of the affected creditors and claims in every class. This restructuring plan must contain the chosen restructuring mechanisms (e.g., debt composition, corporate reorganization, asset sales, etc.), a proof of the debtor's economic viability and an overview of the debtor's assets. During judicial restructuring proceedings, the debtor's management remains in place and is assisted by the trustee and supervised by a creditors' committee. However, the debtor is not allowed to sell any "productive assets" essential to the firms operations within 180 days after the opening of judicial restructuring proceedings. Additionally, the debtor is not allowed to perform transactions that are essential to the business without consent of the administrator.

Extra-judicial restructuring proceedings can only be initiated by the solvent debtor and need to be approved by court. They represent an abbreviated procedure for preparing a restructuring plan with creditors beforehand. If the plan is approved by at least 60% in every affected class of creditors, dissenting creditors (excluding tax and labor claims) may be crammed-down. Both extra-judicial and judicial restructuring procedures allow for debt-to-equity swaps.

In contrast, liquidation proceedings pursue the main goal of satisfying creditors' claims through liquidation of the insolvent debtor's assets. Liquidation proceedings can also be requested by any of the debtor's creditors upon grounds of insolvency-indicating circumstances. It is noteworthy that there is no obligation for the debtor to file for liquidation proceedings. Once liquidation proceedings have been opened by the court, a liquidator is appointed together with creditors and a stay on creditor enforcement ordered. The ad-

ministrator takes over from the debtor's management, liquidates the debtor's assets and distributes the profits in the following order: expenses of the liquidation, unpaid wages, claims incurred during liquidation, secured creditors, taxes, preferred creditors, unsecured creditors, subordinated creditors, shareholders.

Appendix A.4. China

Chinese insolvency law provides for two types of proceedings: restructuring and liquidation proceedings. In any case, upon the declaration of insolvency, existing agreements between the debtor and third parties are not automatically terminated. However, they can be terminated if deemed necessary. Past transactions are subject to claw back, particularly in case of fraud.

Restructuring proceedings can either be initiated by the insolvent or imminently insolvent debtor or by one of its creditors. Once proceedings have been opened, a stay on creditor enforcement is ordered with the exception of secured creditors if there is risk that the secured asset's value is to diminish. The court appoints an administrator who can be a member of a recognized legal, accounting or specialist insolvency firm. The administrator supervises the debtor's management and is in charge of setting up a restructuring plan together with the debtor. The restructuring plan is subject to approval by at least 50% of all creditors in every class. The restructuring is then to be implemented by the debtor under the supervision of the administrator. Should creditors fail to approve the restructuring plan, the administrator may nevertheless submit the restructuring plan to court if he can prove that creditors would not be worse-off than in case of liquidation.

Liquidation proceedings aim at monetizing the insolvent debtor's assets in order to satisfy creditors' claims. Liquidation proceedings can be initiated by the debtor or by one of its creditors once the debtor is insolvent or imminently insolvent. Once liquidation proceedings have been opened, the court orders a stay on enforcement and a liquidator is appointed who can be a member of a recognized legal, accounting or specialist insolvency firm. The liquidator's main tasks are to take over from the debtor's management, to liquidate the debtor's assets and to satisfy claims in the following order: secured creditors,

expenses of the insolvency, unpaid wages, taxes, unsecured creditors, shareholders.

Appendix A.5. Denmark

Insolvency procedures in Denmark can be initiated either by the insolvent debtor or by one of its creditors by filing for insolvency at the local court. Once the court has considered the debtor insolvent, Danish insolvency law ("Konkursloven") provides two formal insolvency proceedings: restructuring and liquidation proceedings. In any case, upon the declaration of insolvency, existing agreements between the debtor and third parties are not automatically terminated. However, they can be terminated if deemed necessary. If it is decided to continue a contract, new obligations from this contract will be awarded priority. Past transactions are subject to claw back, particularly in case of fraud.

Restructuring proceedings pursue the main goal of rehabilitating viable businesses. During restructuring proceedings, the debtor's management remains in place while the debtor is protected against creditor enforcement. However, the debtor is not allowed to perform materially significant transactions without the consent of a trustee appointed by the court together with creditors. If requested by the trustee or the creditors, the court may replace the debtor's management by the trustee. His main task is to set up a restructuring plan that proposes either compulsory compositions or asset transfers or both. The restructuring plan is considered approved unless at least 50% of the affected creditors reject the plan. Present creditors have to represent at least 25% of the affected creditors' claims.

During liquidation proceedings, the court together with creditors appoints a liquidator that replaces the debtor's management. The liquidator's main objective is to liquidate the debtor's assets in the best interests of creditors. The liquidator notifies all relevant parties and requests creditors to lodge their claims. Liquidation proceedings end with the liquidation of the debtor's assets by the liquidator. Claims are then satisfied based on a court-approved distribution in the following order: secured creditors, expenses of the liquidation, claims incurred during liquidation, unpaid wages, taxes, preferred creditors, unsecured creditors, shareholders.

Appendix A.6. Finland

Finnish legislation on insolvency provides two statutory insolvency proceedings: restructuring proceedings ("Laki yrityksen saneerauksesta") and liquidation proceedings ("Konkurssilaki"). Informal insolvency procedures are limited to negotiations between the debtor and individual creditors. In any case, upon the declaration of insolvency, existing agreements between the debtor and third parties are not automatically terminated. However, they can be terminated if deemed necessary. If it is decided to continue a contract, new obligations from this contract will be awarded priority. Past transactions are subject to claw back, particularly in case of fraud.

Restructuring proceedings can also be initiated by the debtor or by one of its creditors. Restructuring proceedings require not only the insolvency or impending insolvency of a debtor but also a reasonable chance that the respective business can be restructured. Once restructuring proceedings have been opened by the court, at least one trustee is appointed by the court together with creditors. The trustee's main task is to set up a restructuring plan that is subject to the approval by at least 50% of every creditor class with respect to the number of creditors and their claims. The debtor's management remains in place while the debtor is protected against creditor enforcement. However, the debtor is not allowed to perform transactions that are essential to the business without consent of the trustee. The goal of the restructuring plan is to ensure that creditors are better off than they would be in case of liquidation. Therefore, the trustee can propose debt restructuring, operational improvements or different corporate strategies in the restructuring plan.

Liquidation proceedings can be initiated either by the insolvent debtor or by one of its creditors. Filing for insolvency requires the debtor's permanent inability to pay due claims. Once liquidation proceedings have been opened by the court, at least one liquidator is appointed by the court together with creditors. The liquidator takes over from the debtor's management and is responsible to notify all relevant parties. Liquidation proceedings end with the liquidation of the debtor's assets by the liquidator. Claims are then satisfied based on a court-approved distribution in the following order: secured creditors and holders of retention rights, claims incurred during liquidation, creditors with mortgage secured claims

capped to 50% of their nominal value, unsecured creditors, shareholders.

Appendix A.7. France

French insolvency law is governed by the commercial code ("Code de Commerce") and provides for two out-of-court proceedings ("mandat ad hoc" and "conciliation") as well as three court-supervised proceedings (safeguard proceedings, restructuring, and liquidation). Once the debtor is insolvent, he is obliged to file for insolvency. Creditors and the public prosecutor can also file for insolvency. Should the firm's restructuring be considered viable, the court may open safeguard or restructuring proceedings. If recovery is deemed impossible, liquidation proceedings will follow. In any case, the court orders a stay on creditor enforcement with the exception of secured creditors. Upon the declaration of insolvency, existing agreements between the debtor and third parties are not automatically terminated. However, they can be terminated if deemed necessary. If it is decided to continue a contract, new obligations from this contract will be awarded priority. Past transactions are subject to claw back, particularly in case of fraud.

The objective of out-of-court proceedings is to reach an out-of-court agreement between the debtor and its creditors. During out-of-court proceedings, there is no stay on creditor enforcement. Dissenting creditors are not affected by the agreement. Mandat ad hoc proceedings aim at preventing insolvency by reaching an informal agreement between the debtor and its creditors. They are opened by the court upon filing by the not yet insolvent debtor. During mandat ad hoc proceedings, the debtor's management remains under the supervision of a court-appointed trustee. Conciliation proceedings are similar to mandat ad hoc proceedings but differ in the way that they are led by a court-appointed trustee and benefit from a claw back exemption in future insolvency proceedings. Additionally, creditors providing new funds via a work-out agreement, benefit from the highest priority of their claims in case of subsequent court-supervised proceedings.

A debtor not yet insolvent but facing difficulties unable to overcome by himself may apply for safeguard proceedings. The objective of safeguard proceedings is to facilitate firm restructuring under supervision of the court. Once safeguard proceedings have been

opened, the court appoints an administrator with the main goal to supervise and assist the debtor's management. The debtor prepares a proposal for a safeguard plan that can include, e.g., debt restructuring, debt-to-equity swaps or piecemeal sales. Approval of the safeguard plan requires approval by at least 66% of the affected creditors. Debt-to-equity swaps have to be approved by at least 66% of shareholders. The safeguard plan can be crammed down on dissenting creditors. The debtor can also file for accelerated safeguard proceedings that adopt a pre-pack safeguard plan and require the approval by at least 50% of the affected creditors. Again, dissenting creditors are crammed down. A third possibility are accelerated financial safeguard proceedings that facilitate financial debt restructuring in large companies. They differ from safeguard proceedings in the way that only financial creditors are involved.

Restructuring proceedings are similar to safeguard proceedings and may be filed for by the insolvent debtor or by one of its creditors. Again, the court appoints a trustee that may take over from the debtor's management. Should the court consider the restructuring plan as unviable, it may impose a piecemeal or going-concern sale of the debtor. Under certain circumstances the administrator is entitled to vote instead of dissenting creditors with respect to debt-to-equity swaps.

Should the debtor be insolvent and restructuring considered impossible, the court will open liquidation proceedings. Once liquidation proceedings have been opened, the court appoints a liquidator, whose main tasks are to take over from the debtor's management, to liquidate the debtor's assets as a going concern or piecemeal and to satisfy creditors' claims in the following order: secured creditors, employees, expenses of the insolvency, claims incurred during liquidation, unsecured creditors, shareholders. Past transactions are subject to claw back, particularly in case of fraud.

Appendix A.8. Germany

Insolvency procedures in Germany can be initiated either by the debtor or by one of its creditors by filing at the court. German insolvency law ("Insolvenzordnung") defines three grounds on which to file for insolvency: insolvency due to illiquidity, over-indebtedness,

and imminent insolvency. After filing for insolvency, the German insolvency procedure can be divided into two steps. Preliminary proceedings cover the period until the court's decision to open main proceedings. During preliminary and main proceedings, creditors are subject to a stay on creditor enforcement with the exception of secured creditors and may be crammed down by at least 50% of creditors. Firms are entitled to file for protection scheme proceedings during preliminary proceedings, which would be continued as self-administration proceedings during main proceedings. Protection scheme proceedings allow firms to set up a restructuring plan and, in principle, correspond to debtor-in-possession proceedings under the supervision of a trustee.

Main insolvency proceedings begin once insolvency proceedings have been opened by the court and are handled by an administrator appointed by the court together with creditors. The administrator chairs two creditor meetings to decide between firm liquidation and restructuring. Should creditors decide in favor of restructuring, the administrator as well as the debtor can submit a restructuring plan proposal to the court. The restructuring plan can foresee, e.g., out-of-court restructuring, sale of the firm as a going concern, piecemeal liquidation, and debt-to-equity swaps. Adoption of the restructuring plan requires at least 50% of every affected creditor class with respect to the number of creditors and their claims. Dissenting groups of creditors may be subject to cram down if they are not likely to be placed at a disadvantage by the restructuring plan. If the debtor is granted self-administration by the court, and the decision is supported by at least 50% of creditors, the administrator is replaced by a trustee with supervisory functions. Termination of self-administration can be requested at any time by a majority of at least 50% of creditors.

In liquidation proceedings, the administrator becomes a liquidator. The liquidator's main tasks are to take over from the debtor's management, to liquidate the debtor's assets and to satisfy claims in the following order: secured creditors, expenses of the liquidation, claims incurred during insolvency, preferred creditors, unsecured creditors, shareholders.

In any case, upon the declaration of insolvency, existing agreements between the debtor and third parties are not automatically terminated. However, they can be terminated if deemed necessary. If it is decided to continue a contract, new obligations from this

contract will be awarded priority. Past transactions are subject to claw back, particularly in case of fraud.

Appendix A.9. Greece

The Greek insolvency law provides four types of insolvency proceedings: pre-insolvency rehabilitation, pre-insolvency special liquidation, restructuring and liquidation. Pre-insolvency proceedings are aimed at business continuation or the quick sale of a company as a going concern before insolvency proceedings are opened. Debtors are allowed to file for pre-insolvency rehabilitation proceeding and insolvency at the same time. In this case the opening of insolvency proceedings remains pending until pre-insolvency proceedings fail.

Pre-insolvency rehabilitation proceedings are subject to the court's approval and can either take the form of a pre-negotiated agreement or a court supervised negotiation process. Contents of the agreement can be negotiated freely between the debtor and its creditors, and thus allow for, e.g., debt-to-equity swaps or structured liquidation of the business. An agreement requires the approval by at least 60% of affected unsecured and at least 40% of affected secured claims resulting in the cram down of dissenting creditors. During negotiations the court grants a stay on creditor enforcement.

Pre-insolvency special liquidation proceedings become available in the event of illiquidity. In principle they correspond to a fast-track liquidation process with the aim at selling the firm as a going concern. Special liquidation proceedings can be opened either by the debtor or by one of its creditors representing at least 20% of claims. However, creditors can also oppose to special liquidation if at least 60% of affected claims including at least 40% of affected secured claims vote against the proceedings. Once special liquidation proceedings have been opened the court appoints a liquidator whose main task is to sell the firm as a going concern.

Restructuring proceedings can be opened at the court by the insolvent debtor. During restructuring proceedings a stay on creditor enforcement is ordered by court. The debtor or by a court-appointed trustee then elaborate a restructuring plan that is subject to the approval by at least 60% of the affected creditors including at least 40% of affected secured

creditors. Dissenting groups of creditors may be subject to cram down if they are not likely to be placed at a disadvantage by the restructuring plan. However, final approval of the restructuring plan is incumbent upon the court<.

Liquidation proceedings can be opened by the insolvent debtor, its creditors or the attorney general. Prerequisite of liquidation proceedings is the debtor's inability to pay its due debts. Once liquidation proceedings have been opened, the court appoints a liquidator. The liquidator's main tasks are to take over from the debtor's management, to liquidate the debtor's assets and to satisfy claims in the following order: claims incurred during insolvency, employees, taxes, expenses of the liquidation, secured creditors (65% of remaining proceeds), preferred creditors (25% of remaining proceeds), unsecured creditors (10% of remaining proceeds), shareholders.

In restructuring or liquidation proceedings, upon the declaration of insolvency, existing agreements between the debtor and third parties are not automatically terminated. However, they can be terminated if deemed necessary. If it is decided to continue a contract, new obligations from this contract will be awarded priority. Past transactions are subject to claw back, particularly in case of fraud.

Appendix A.10. India

The Indian Insolvency Code offers for two types of insolvency proceedings: restructuring and liquidation proceedings. Typically insolvency proceedings in India will always start with restructuring proceedings in order to assess the viability of the debtor's business.

Restructuring proceedings can be opened either by the debtor or by one of its creditors once the debtor has become insolvent. Once proceedings have been opened, the court orders a stay on creditor enforcement and appoints an administrator that takes over from the debtor's management. Together with the creditors, the administrator is in charge of setting up a restructuring plan that is subject to the approval by at least 75% of creditors. Consequently, dissenting creditors are subject to cram down.

Liquidation proceedings aim at monetizing the insolvent debtor's assets in order to satisfy creditors' claims. Liquidation proceedings can be initiated by the debtor or by

one of its creditors once the debtor is insolvent. Once liquidation proceedings have been opened, the court appoints a liquidator and orders a stay on creditor enforcement. Creditor claims are subject to claw back, particularly in case of fraudulent transactions. The liquidator's main tasks are to take over from the debtor's management, to liquidate the debtor's assets and to satisfy claims in the following order: expenses of the liquidation, secured creditors, unpaid wages, preferred creditors, government dues, unsecured creditors, shareholders. All existing contractual agreements between the debtor and third parties are terminated during liquidation proceedings.

Appendix A.11. Ireland

Insolvency law in Ireland is defined by the "Companies Acts" and the "Conveyancing and Law of Property Act" providing two mechanisms for distressed companies: restructuring ("Examinership") and liquidation proceedings. Restructuring proceedings may be opened by the debtor or by one of its creditors if the debtor is unable to pay its due debts and there exists a reasonable chance of survival as a going concern. Once restructuring proceedings have been opened, the court orders a stay on creditor enforcement with the exception of secured creditors and appoints a trustee. While the debtor's management stays, the trustee is responsible for assessing the debtor's current situation and the likelihood for its successful restructuring. Upon the declaration of insolvency, existing agreements between the debtor and third parties are not automatically terminated. However, they can be terminated if deemed necessary. If it is decided to continue a contract, new obligations from this contract will be awarded priority. Past transactions are subject to claw back. If survival is considered realistic, the trustee formulates a proposal for a scheme of arrangement subject to approval by at least one class of creditors, and thus allow for cram down of dissenting creditors.

Additionally, Irish insolvency law provides the option to prepare an out-of-court scheme of arrangement between the debtor and its creditors. The debtor's management stays in charge and submits a proposal for a scheme of arrangement to its creditors, however, without the additional protection of a stay on creditor enforcement. The scheme of arran-

gement is to be approved by at least 50% of creditor classes and 75% of claims' as well as the court. Again, dissenting creditors can be crammed down.

Liquidation proceedings in Ireland can take the form of either compulsory liquidation proceedings, initiated by the court upon creditors' request, or voluntary liquidation proceedings, initiated by the debtor itself. Prerequisite of compulsory liquidation proceedings is the debtor's inability to pay its due debts or the court's appraisal that the debtor's liquidation is just and equitable. Once insolvency proceedings have been opened, the court appoints a liquidator, whose main tasks are to take over from the debtor's management, to liquidate the debtor's assets and to satisfy claims in the following order: fixed charge holders, expenses of the liquidation, preferential creditors, floating charge holders, unsecured creditors, deferred creditors, shareholders. However, the liquidator may also prepare proposals to achieve a compromise between the debtor and its creditors.

In addition to liquidation, Irish insolvency law provides secured creditors the possibility to appoint a receiver. The receiver's main task is to take over management of the debtor's assets serving as a collateral, to monetize the respective assets and to satisfy the appointing creditor's claims. In contrast to liquidation, receivership is a temporary condition does not lead to the debtor's liquidation. In theory, the company can pursue its business after discharge of the receiver.

Appendix A.12. Italy

Italian insolvency law generally divides insolvency proceedings into pre-insolvency and insolvency proceedings. There are two types of pre-insolvency and four types of insolvency proceedings.

Pre-insolvency composition proceedings ("concordato preventivo") can only be filed for by the debtor. Once proceedings have been opened, the court together with creditors appoints a trustee and orders a stay on creditor enforcement while a composition agreement is negotiated between the debtor and its creditors. Approval of the agreement requires approval by at least 50% of affected creditor classes as well as a certification by an independent expert that the following conditions are met simultaneously: the debtor is in

financial distress, secured creditors will not be worse-off than in liquidation, unsecured creditors must receive at least 20% of their claims, asset sales are subject to a tender process, creditors with due claims of more than 10% had the possibility to make counter-proposals. Dissenting creditors can be crammed down.

Debt-restructuring agreements and turnaround plans ("accordi di ristrutturazione dei debiti e piani attestati di risanamento") are initiated by and negotiated between the debtor and its creditors. For implementation, a debt-restructuring agreement requires approval by at least 60% of the affected creditors as well as the certification by an expert that creditors not participating in the agreement will be paid back. If at least 75% of the creditors are financial intermediaries and approve the agreement, it can entail standstill agreements that can be crammed down on dissenting creditors. Debt-restructuring agreements benefit from a claw back exemption in future insolvency proceedings.

During insolvency proceedings, upon the declaration of insolvency, existing agreements between the debtor and third parties are not automatically terminated. However, they can be terminated if deemed necessary. If it is decided to continue a contract, new obligations from this contract will be awarded priority. Past transactions are subject to claw back, particularly in case of fraud.

Liquidation proceedings ("fallimento") are initiated by the debtor or by one of its creditors once the firm is insolvent or in case all other available proceedings fail. Once insolvency proceedings have been opened, the court together with creditors appoints a liquidator and orders a stay on creditor enforcement. The administrator's main tasks are to take over from the debtor's management, to liquidate the debtor's assets and to satisfy claims in the following order: expenses of the liquidation, unpaid wages, social security, taxes, secured creditors, unsecured creditors, shareholders.

Alternatively, the administrator may achieve creditors' composition in insolvency ("concordato fallimentare"). This composition allows to restructure the firm's debt or to lease the business to a third party. Creditor approval is achieved by the approval of at least 50% of affected creditor classes. Dissenting creditors can be crammed down. However, the composition agreement must provide secured creditors with at least the liquidation value

of their assets.

Finally, there are two extraordinary restructuring proceedings that are available to large debtors: the Prodi-bis procedure and the Marzano procedure. Both procedures aim at the rescue of debtors with a significant number of employees or a high volume of outstanding debt. In both cases, ministerial approval is required for the opening and the court evaluates the prospect of a successful restructuring before elaborating a restructuring plan. The Marzano procedure differs from the Prodi procedure in that it allows for composition agreements with creditor cram down.

Appendix A.13. Luxembourg

Luxembourg's insolvency law provides for two types of insolvency proceedings: liquidation proceedings ("Code de Commerce") and restructuring proceedings. Restructuring proceedings may be divided into three types (controlled management, composition, and reprieve of payments). Only the debtor is entitled to file for restructuring proceedings with the court. During restructuring proceedings, the debtor's management stays in place but remains under the court's supervision. At any time, the court may declare the company insolvent if the respective conditions are met.

Controlled management proceedings are used to restructure or liquidate the debtor's business. Only a debtor with tainted creditworthiness or difficulties to meet its due payments can file for controlled management proceedings. Once controlled management proceedings have been opened, the court orders a stay on creditor enforcement with exception of secured creditors. The debtor then elaborates a restructuring or liquidation plan that is subject to the approval at least 50% of creditors and 50% of claims. Once approved, the plan can be crammed down on dissenting creditors. After a successful proceeding, the debtor regains control over its business. Otherwise, the debtor is declared insolvent.

Composition proceedings aim at avoiding liquidation by negotiating a settlement or debt rescheduling with creditors. In order to apply for this proceeding, the debtor must be unable to meet his due payments or have lost its creditworthiness. Composition proceedings require the approval of at least 50% of creditors representing at least 75% of

outstanding claims. Secured creditors may only vote once they waive their security rights. Once approved, the plan can be crammed down on dissenting creditors. During composition proceedings, there is a stay on creditor enforcement for creditors being part of the composition agreement.

Reprieve of payments is available to debtors facing temporary illiquidity. It is granted by the court if the debtor is able to prove that his financial difficulties are due to extraordinary circumstances and that he will be able to repay creditors in the future. The court may additionally grant a temporary stay on creditor enforcement with the exception of secured creditors. The reprieve of payments is subject to the approval by at least 50% of creditors representing at least 75% of outstanding claims as well as the Superior Court of Justice.

Liquidation proceedings can be initiated by the debtor, its creditors, or the court. Two conditions must be met in order to open insolvency proceedings: cessation of payments and loss of creditworthiness. Once insolvency proceedings have been opened, the court appoints a liquidator and orders a stay on creditor enforcement with exception of secured creditors. Creditor claims are subject to claw back, particularly in case of fraudulent transactions. The liquidator's main tasks are to take over from the debtor's management, to liquidate the debtor's assets and to satisfy claims in the following order: expenses of the liquidation, wages, social security, taxes, secured creditors, unsecured creditors, shareholders.

Appendix A.14. Netherlands

Insolvency law in the Netherlands ("Faillissementswet") is primarily based on the concept of liquidation. It contains two types of proceedings: insolvency proceedings ("faillissement") and suspension of payments ("surseance van betaling"). In any case, upon the declaration of insolvency, existing agreements between the debtor and third parties are not automatically terminated. However, they can be terminated if deemed necessary. If it is decided to continue a contract, new obligations from this contract will be awarded priority. Past transactions are subject to claw back, particularly in case of fraud.

Suspension of payments proceedings aim at the continuation and restructuring of the

debtor's business which is considered at least partially viable. Only the debtor may apply for suspension of payments proceedings under insolvency or imminent insolvency. There is no obligation for the debtor to file for insolvency, and he can be held liable should the lack of filling turn out to be detrimental to the creditors. During suspension of payments proceedings, the debtor's management remains in place but is subject to the supervision by a court-appointed trustee. The suspension of payments only affects unsecured creditors. The debtor negotiates a composition agreement with unsecured creditors that is subject to approval by at least 50% of affected claims, thus allowing for cram down of dissenting creditors. Secured and preferential creditors can still enforce their claims, unless prohibited by the court. To prevent foreclosure by secured and preferential creditors, the court may order a cooling-off period.

Liquidation proceedings aim at monetizing the insolvent debtor's assets in order to satisfy creditors' claims. They can be initiated by the debtor, its creditors or the public prosecutor once the debtor is unable to service its due debts. Again, the debtor is not obliged to file for insolvency. However, the debtor can be held liable should the lack of filling turn out to be detrimental to the creditors. Once insolvency proceedings have been opened, the court appoints a liquidator and orders a stay on creditor enforcement with exception of secured creditors. Creditors can influence proceedings through non-binding recommendations by a creditors' committee. The liquidator's main tasks are to take over from the debtor's management, to liquidate the debtor's assets and to satisfy claims in the following order: claims incurred during insolvency, expenses of the liquidation, secured creditors, preferred creditors, unsecured creditors. If possible, the liquidator will sell the debtor's business piecemeal or as a going-concern to an interested party. To prevent foreclosure by secured creditors, the court may order a cooling-off period.

Appendix A.15. Portugal

The Portuguese insolvency law ("Código da Involsvência e Recuperação de Empresas") provides three types of proceedings in case of insolvency: pre-insolvency proceedings, liquidation proceedings as well as in-court and out-of-court restructuring proceedings.

The proceeding's main goal is to enable companies in distress to restructure at an early stage. In both cases debtors are protected by a stay on creditor enforcement.

During court-monitored pre-insolvency proceedings (PER - "Proceso Especial de Revitalização") the debtor has the possibility to elaborate and negotiate a restructuring plan with its creditors. In order to supervise the debtor, the court together with creditors appoints a trustee. The trustee's main tasks are to notify creditors and to request them to lodge their claims in order to participate in the negotiations of a restructuring plan.

Out-of-court restructuring proceedings (SIREVE - "Sistema de Recuperação por Via Extrajudicial") provide debtors with the possibility to set up an out-of-court restructuring plan. However, SIREVE proceedings are only available to debtors showing sufficient economic viability and being supported by least 33% of affected claims. The restructuring plan is subject to approval by at least 66% of affected claims. The court then only ensures that all creditors adhere to the agreement.

Restructuring proceedings can be initiated by the insolvent debtor or by one of its creditors. Once restructuring proceedings have been opened, the court together with creditors appoints a trustee that is in charge to elaborate a restructuring plan. Approval of the restructuring plan requires the approval by at least 50% of affected creditor classes and claims. Dissenting groups of creditors may be crammed down if they are not likely to be placed at a disadvantage by the restructuring plan. The trustee may take over from the debtor's management to better drive the restructuring process.

Liquidation proceedings pursue the goal of creditor satisfaction through the liquidation of the insolvent debtor's assets. Liquidation proceedings can be initiated by the debtor or by one of its creditors by filing for insolvency at the court. Once liquidation proceedings have been opened, the court together with creditors appoints a liquidator and orders a stay on creditor enforcement. The liquidator takes over from the debtor's management, requests creditors to lodge their claims and monetizes the debtor's assets. Liquidation proceedings end once the court approves the distribution of liquidation profits in the following order: expenses of the liquidation, secured creditors, claims incurred during insolvency, unsecured creditors, shareholders.

In any case, upon the declaration of insolvency, existing agreements between the debtor and third parties are not automatically terminated. However, they can be terminated if deemed necessary. If it is decided to continue a contract, new obligations from this contract will be awarded priority. Past transactions are subject to claw back, particularly in case of fraud.

Appendix A.16. Russia

Russian insolvency law provides for five types of proceedings: supervision ("nabludenie"), financial rehabilitation ("finansovoe ozdorovlenie"), external administration ("vneshnee upravlenie"), liquidation ("konkursnoe proizvodstvo"), and amicable agreements ("mirovoe soglashenie"). In any case, a stay on enforcement is ordered by the court. Outside of liquidation, secured creditors can only enforce their rights via financial rehabilitation or external administration, and further only if the assets are not critical to operations. Upon the declaration of insolvency, new obligations arising will be awarded priority. Past transactions are subject to claw back, particularly in case of fraud.

Insolvency procedures have to be initiated by the debtor once he is unable to service its due debt. Alternatively, creditors can file for insolvency if they prove that they are entitled to a claim that is larger than 300,000 RUB, three months overdue and enforceable by a court writ. Credit institutions are exempt from the necessity of a court order.

Insolvency proceedings start with compulsory supervision proceedings during which the court together with the creditors appoints a trustee. The creditors are entitled to propose a trustee should they have filed for insolvency. Otherwise the court chooses from a candidate list provided by one of the national insolvency trustee associations. The trustee advises the debtor's management which stays in place. Finally a creditors' meeting is scheduled during which a decision on the next steps is to be taken.

Financial rehabilitation aims at establishing a restructuring plan that restores the debtor's solvency. It can be initiated by creditors or the debtor itself. However, the debtor's filing requires the proof of sufficient collateral to secure debt repayment according to the repayment plan. The overall process is supervised by a trustee and subject to

the approval by at least 50% of affected claims. In the event of failing financial rehabilitation, the debtor moves automatically into liquidation, unless creditors petition for the pursuit of proceedings under external administration.

During external administration the debtor's management is replaced by an administrator. The administrator's main task is to setup a solvency restoration plan that is subject to the approval by at least 50% of affected claims. The solvency restoration plan may include asset sales or the issue of new shares.

Liquidation proceedings can either be initiated by the firm's creditors or follow automatically in the case that all other available proceedings fail. Once liquidation has been opened, the court together with creditors appoints a liquidator that takes over from the debtor's management, liquidates the debtor's assets and satisfies the claims in the following order: expenses of the insolvency, claims incurred during liquidation, claims for tort, unpaid wages, secured creditors, unsecured creditors, shareholders.

At any time during insolvency proceedings, creditors and the debtor can come to an amicable agreement. This agreement can consist of payment deferrals and write-downs and must provide for full repayment of current claims and most of preferred claims. The agreement requires approval by all secured creditors and at least 50% of the affected creditors, and thus allow for cram down of dissenting creditors.

Appendix A.17. Spain

The Spanish insolvency law ("Ley Concursal") proposes a single procedure to resolve insolvency. Filing for insolvency requires the debtor's permanent or imminent inability to pay due claims. However, filing for insolvency is not mandatory in case of imminent insolvency. Before filing for insolvency, the debtor can opt for insolvency postponement measures ultimately providing him with up to four additional months to reach an agreement with his creditors as well as the protection offered by a stay on creditor enforcement. Should no agreement be reached, the debtor must file for insolvency.

Insolvency proceedings can be initiated either by the debtor (voluntary proceedings) or its creditors (involuntary proceedings). Once insolvency proceedings are opened, the court

appoints an administrator that takes over the debtor's management in case of involuntary proceedings. In case of voluntary proceedings the administrator remains in or supervises the debtor's management.

The debtor has two options to resolve insolvency: debt restructuring agreements or liquidation. In any case, upon the declaration of insolvency, existing agreements between the debtor and third parties are not automatically terminated. However, they can be terminated if deemed necessary. If it is decided to continue a contract, new obligations from this contract will be awarded priority. Past transactions are subject to claw back, particularly in case of fraud.

Debt restructuring agreement are discussed in a creditors' meeting and subject to approval by court and at least 50% of affected claims per creditor class, and thus allow for cram down of dissenting creditors. However, debt restructuring agreements that entail debt-to-equity swaps may not be imposed on dissenting creditors. While specifying the details of such an agreement, the debtor may apply for a stay on creditor enforcement with respect to creditor claims regarding business critical assets.

Liquidation proceedings can be requested by the debtor or by one of its creditors at any time during insolvency proceedings. The liquidator's main tasks are to list and review creditors' claims, to monetize the debtor's assets and to satisfy claims in the following order: expenses of the liquidation, specially prioritized creditors (e.g., mortgages), generally prioritized creditors (e.g., salaries, tax claims), ordinary creditors (e.g., suppliers), subordinated creditors (e.g., fines, sanctions), shareholders. Past transactions are subject to claw back, particularly in case of fraud.

Appendix A.18. Sweden

Swedish legislation on insolvency provides for three main formal procedures for companies in financial distress: pre-insolvency proceedings ("Underhansdackord"), restructuring proceedings ("Lagen om Företagsrekonstruktion") and liquidation ("Konkurslagen"). Pre-insolvency proceedings mainly consist of amicable settlement agreements between the debtor and its creditors. Under pre-insolvency the not yet insolvent debtor has the possi-

bility to negotiate a voluntary debt composition agreements with its creditors in order to become insolvent.

In any other case, upon the declaration of insolvency, existing agreements between the debtor and third parties are not automatically terminated. However, they can be terminated if deemed necessary. If it is decided to continue a contract, new obligations from this contract will be awarded priority. Past transactions are subject to claw back, particularly in case of fraud.

Restructuring proceedings can be requested for firms with a reasonable chance of successful restructuring by the insolvent debtor itself or its creditors at the court. Restructuring proceedings can also be opened if the debtor faces temporary illiquidity. Once restructuring proceedings have been opened by the court, one or more administrators are appointed. The administrator's main tasks are to review the debtor's financial situation and set up a restructuring plan that is subject to creditors' approval. In contrast to liquidation proceedings, the debtor's management remains in place while the debtor is protected against enforcement by unsecured creditors. However, the debtor is not allowed to perform transactions that are essential to the business without consent of the administrator.

The restructuring plan aims at reducing debt claims to a more manageable amount through debt restructuring and compositions. Priority claims and satisfiable claims are excluded while subordinated creditors may only participate if the other participating creditors agree. Financing provided during restructuring proceedings is to be treated as preferential claims and with the highest priority. Restructuring proceedings end once the restructuring plan is agreed and approved by all creditors unanimously or, alternatively, by the court at least 50% of the affected creditors and at least 60% of affected claims, and thus allow for cram down of dissenting creditors.

The main goal of liquidation proceedings is to liquidate the insolvent debtor's assets in order to satisfy creditors' claims. They can be initiated by the insolvent debtor or by one of its creditors. Filing for insolvency requires the debtor's permanent inability to pay due claims. Once liquidation proceedings have been opened by the court, one or several liquidators are appointed and a stay on enforcement ordered. The liquidator takes

over from the debtor's management, liquidates the debtor's assets and satisfies claims in the following order: specific priority claims (e.g., debt secured on specific property or by special procedures), general priority claims (e.g., legal and procedural costs, wages), non-priority claims, shareholders.

Appendix A.19. United Kingdom

Insolvency law in the United Kingdom ("Insolvency Act") provides for five statutory bankruptcy proceedings: restructuring (administration proceedings, "company voluntary arrangement" (CVA) or scheme of arrangement) and liquidation (winding-up and receivership). With the exception of CVAs and scheme of arrangements, once proceedings have been opened, the court orders a stay on creditor enforcement with the exception of secured creditors. Past transactions are subject to claw back, particularly in case of fraud. In any case, upon the declaration of insolvency, existing agreements between the debtor and third parties are not automatically terminated. However, they can be terminated if deemed necessary. If it is decided to continue a contract, new obligations from this contract will be awarded priority. Past transactions are subject to claw back, particularly in case of fraud.

The main option for firms facing financial distress are administration proceedings intended to rescue the debtor as a going concern. Administration proceedings can be initiated by the court upon a request by the insolvent debtor, its creditors or a floating charge holder.[1] Once administration proceedings have been opened, the debtor or by a floating charge holder appoints an administrator that takes over from the debtor's management. Administration proceedings allow for the piecemeal or sale as a going concern of the debtor's business as well as the liquidation of the debtor's assets. A special form of administration proceedings are pre-packaged administration sales in which the piecemeal or sale as a going concern of the debtor's business is arranged prior to and conducted immediately after the administrator's appointment.

Additionally, British insolvency law provides the possibility for restructuring proceedings via a CVA or similarly, a scheme of arrangement. CVAs differ from schemes of

[1] A floating charge is a form of security in British law that fluctuates over time. As opposed to a fixed charge, e.g., secured by land or machinery, it is identified generically rather than individually and ranks behind fixed charge holders and preferential creditors.

arrangement in that the debtor must necessarily be insolvent in order to be eligible for the CVA. Both means allow the debtor's management to stay in charge and submit a restructuring plan to its creditors. An exception applies to small companies[2], which can be granted a stay on creditor enforcement for three months while preparing a CVA. Additionally, a CVA or scheme of arrangement can also be prepared in parallel to administration proceedings, thus providing the protection of a stay on creditor enforcement. CVAs consist of a restructuring plan proposal (e.g., composition agreement) subject to approval by at least 50% of the affected creditors and at least 75% of affected claims, and thus allow for cram down of dissenting creditors. Secured creditors, however, are not bound by the CVA unless they consent to be bound by it. In opposition, a scheme of arrangement binds all creditors once it has been approved by at least 50% of the affected creditors in every creditor class and at least 75% of affected claims as well as the court. Again, dissenting creditors can be crammed down.

Besides administration proceedings that can lead to the debtor's winding-up, British insolvency law also provides for formal liquidation proceedings. Liquidation proceedings are opened by the court and can take the form of compulsory liquidation initiated by a creditor or voluntary liquidation initiated by the debtor. Prerequisite of compulsory liquidation proceedings are the debtor's inability to pay its due debts, its over-indebtedness or the court's appraisal that the debtor's liquidation is just and equitable. Once insolvency proceedings have been opened, the court together with creditors appoints a liquidator that takes over from the debtor's management, liquidates the debtor's assets and satisfies claims in the following order: fixed charge holders, expenses of the liquidation, preferred creditors, floating charge holders, unsecured creditors, shareholders.

During liquidation proceedings, secured creditors have the right to appoint a receiver. The receiver's main tasks are to take over management of the debtor's assets serving as a collateral, to monetize the respective assets and to satisfy the appointing creditor's claims. Receivership may be initiated with respect to a specific fixed charge or with regard to the debtor's assets appointed under a floating charge.

[2] Firms that meet at least two of the following criteria in the respective previous fiscal year are considered to be small: total assets smaller than £3.26m, total sales smaller than £6.5m, and average number of employees smaller than 50.

Appendix A.20. United States of America

The United States' insolvency law ("Bankruptcy Code") provides two types of proceedings in case of insolvency: restructuring proceedings ("Chapter 11") and liquidation proceedings ("Chapter 7"). In both cases, once proceedings have been opened, the court orders a stay on creditor enforcement. Existing agreements between the debtor and third parties are not automatically terminated. However, they can be terminated if deemed necessary. If it is decided to continue a contract, new obligations from this contract will be awarded priority. Past transactions are subject to claw back, particularly in case of fraud.

The main goal of restructuring proceedings under Chapter 11 is to give financially distressed companies the possibility to financially restructure while keeping the business as a going concern. Chapter 11 proceedings are initiated either by the debtor or by one of its creditors by filing a petition for relief. In case of the debtor filing for Chapter 11, there is no need to provide proof of insolvency nor does the court have to approve the petition. Once Chapter 11 proceedings have been opened, the debtor is prohibited from selling any assets outside of the day-to-day business without approval by the court. Existing contractual agreements between the debtor and third parties may be terminated if they are considered detrimental by the debtor. The debtor and its creditors elaborate a restructuring plan subject to creditor approval typically consisting of debt renegotiation, operational restructuring or debt-to-equity swaps. Approval by only one class of the affected creditors is sufficient for the restructuring plan to become effective. Dissenting groups of creditors may be subject to cram down if they are not likely to be placed at a disadvantage by the restructuring plan. In general, Chapter 11 proceedings correspond to debtor-in-possession proceedings, in the way that existing management stays in place but remains under the supervision of the court.

The main goal of liquidation proceedings under Chapter 7 is to liquidate the debtor's assets in order to satisfy creditors' claims. Chapter 7 proceedings are initiated in the same way and under the same conditions as Chapter 11 proceedings. Once Chapter 7 proceedings are opened, the court together with creditors appoints an interim liquidator and orders a stay on creditor enforcement. The interim liquidator takes over from the

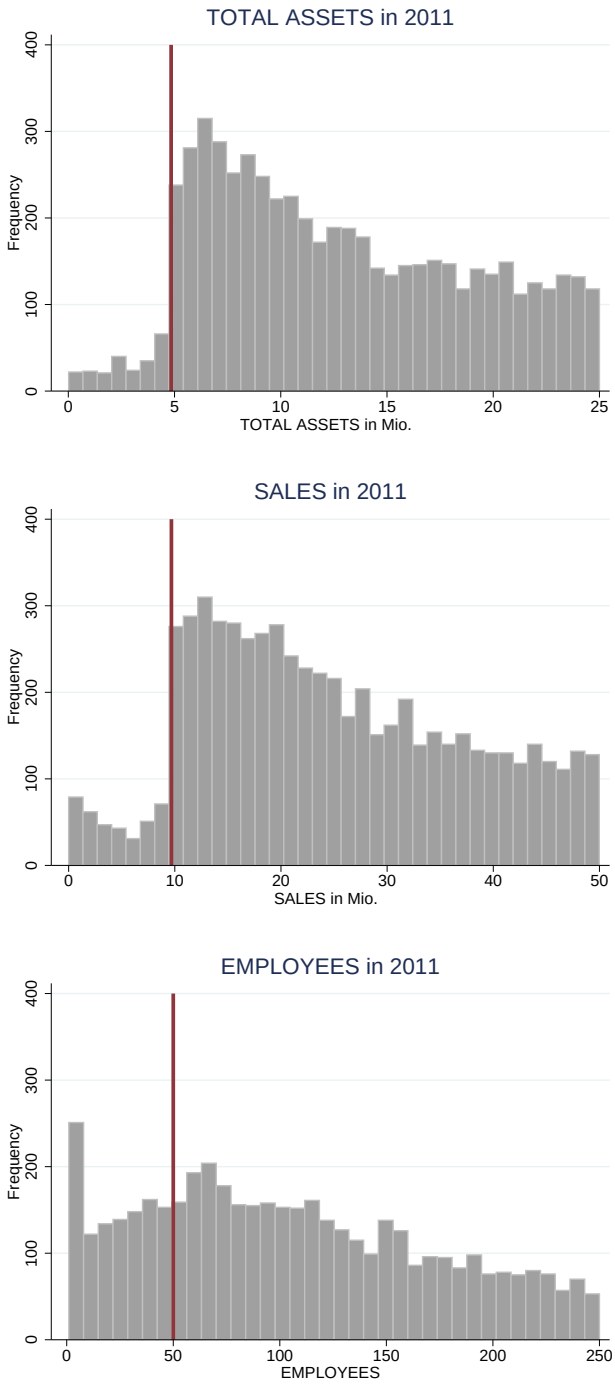
debtor's management and schedules a creditors' meeting during which creditors are given the opportunity to elect the liquidator. Otherwise the interim liquidator will assume the role of liquidator. The liquidator's main tasks are to list and review creditors' claims, to monetize the debtor's assets and to satisfy claims in the following order: secured creditors, preferred unsecured creditors (e.g., wages, pension and taxes), unsecured creditors, shareholders.

Alternatively, the United States' insolvency law also provides for debtor-in-possession liquidation proceedings. Those proceedings are regulated under Chapter 11 by means of applying a Chapter 11 restructuring plan. The supervision of the case is then incumbent upon the court, as no trustee is appointed.

Appendix B.: Definition of variables.

Variable	Description
Main variables	
LEVERAGE	Total debt divided by total debt plus book value of equity. *Source: Hoppenstedt*
SHORT-TERM LEVERAGE	Short-term debt divided by total debt plus book value of equity. *Source: Hoppenstedt*
INTEREST	Interest expenses divided by total debt. *Source: Hoppenstedt*
GROSS INVESTMENT	Difference in gross property, plant and equipment versus the previous year divided by total debt plus book value of equity in the respective year. *Source: Hoppenstedt*
NET INVESTMENT	Difference in net property, plant and equipment versus the previous year divided by total debt plus book value of equity in the respective year. *Source: Hoppenstedt*
TREATED	Dummy equal to one for each firm in the treatment group and zero for each firm in the control group.
POST	Dummy equal to one in and after the year of ESUG (2011).
TREATED x POST	Interaction of TREATED and POST equal to one for treatment firms in and after the year of ESUG (2011).
Bef2	Dummy equal to one two years before ESUG, i.e., in 2009.
Bef1	Dummy equal to one one year before ESUG, i.e., in 2010.
T0	Dummy equal to one in the year of ESUG, i.e., in 2011.
Aft1	Dummy equal to one one year after ESUG, i.e., in 2012.
Aft2	Dummy equal to one two years after ESUG, i.e., in 2013.
Control variables	
SIZE	Natural logarithm of total assets. *Source: Hoppenstedt*
ROA	Net income divided by total assets. *Source: Hoppenstedt*
TANGIBILITY	Property, plant and equipment divided by total assets. *Source: Hoppenstedt*
CASHFLOW	EBITDA divided by the difference in net property, plant and equipment versus the previous year. *Source: Hoppenstedt*

Appendix C.: Distribution of assignment variables in the introduction year of ESUG (2011).



We show the distribution of assignment variables in the introduction year of ESUG (2011). We use the dataset resulting from step 5 in Table 3.1. For matters of readability, the variables are caped at 5 times the assignment threshold, i.e., total assets greater than €4.84m, total sales greater than €9.68m and average number of employees greater than 50. A description of all variables can be found in Appendix B.

Appendix D.: Financial leverage: Difference-in-differences regressions with alternative sets of fixed effects.

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Reform window	[-2;+2]	[-2;+2]	[-2;+2]	[-2;+2]	[-2;+2]	[-1;+1]	[-1;+1]	[-1;+1]	[-1;+1]	[-1;+1]
Dep. variable:						LEVERAGE				
TREATED x POST	**-0.059*** (-2.610)**	**-0.059*** (-2.612)**	**-0.059*** (-2.685)**	**-0.058** (-2.568)**	**-0.058** (-2.573)**	**-0.040* (-1.822)**	**-0.040* (-1.823)**	**-0.041* (-1.938)**	**-0.042* (-1.913)**	**-0.042* (-1.912)**
TREATED	0.175***	0.175***	0.177***			0.154***	0.154***	0.156***		
	(4.477)	(4.478)	(4.596)			(3.877)	(3.877)	(4.023)		
POST	0.008			0.006		0.018			0.019	
	(0.488)			(0.393)		(1.030)			(1.114)	
ROA	-0.491***	-0.484***	-0.484***	-0.493***	-0.487***	-0.379***	-0.377***	-0.357***	-0.346***	-0.343***
	(-6.617)	(-6.586)	(-6.723)	(-6.312)	(-6.276)	(-3.721)	(-3.710)	(-3.593)	(-3.027)	(-3.017)
SIZE	0.016	0.015	0.025	0.075**	0.073**	-0.012	-0.013	-0.005	0.024	0.021
	(1.112)	(1.053)	(1.598)	(2.308)	(2.270)	(-0.970)	(-1.003)	(-0.375)	(0.668)	(0.611)
TANGIBILITY	0.015	0.013	-0.007	0.057	0.052	0.066	0.064	0.032	0.068	0.061
	(0.258)	(0.219)	(-0.118)	(0.712)	(0.638)	(1.070)	(1.044)	(0.475)	(0.536)	(0.477)
Constant	0.184	0.220	0.095	-0.716	-0.661	0.633***	0.000	0.618**	0.112	0.151
	(0.750)	(0.898)	(0.336)	(-1.331)	(-1.240)	(2.962)	(0.000)	(2.312)	(0.194)	(0.263)
Observations	1,420	1,420	1,420	1,420	1,420	852	852	852	852	852
Number of firms	284	284	284	284	284	284	284	284	284	284
Within-R^2	0.130	0.140	0.205	0.141	0.150	0.0596	0.0640	0.156	0.0632	0.0672
Firm FE	No	No	No	Yes	Yes	No	No	No	Yes	Yes
Year FE	No	Yes	Yes	No	Yes	No	Yes	Yes	No	Yes
Industry-Year FE	No	No	Yes	No	No	No	No	Yes	No	No

The table presents coefficients from difference-in-differences regressions. LEVERAGE is the dependent variable. The sample is restricted to observations in the time window around the introduction of ESUG (2011) presented in column titles. TREATED is a dummy variable set to one for treatment firms, and zero otherwise. Treated firms are medium-sized German firms while control firms are size- and industry-matched small-sized German firms. Medium-sized German firms are firms that meet at least two of the following criteria in the respective previous fiscal year: total assets greater than €4.84m, total sales greater than €9.68m and average number of employees greater than 50. POST is a dummy variable set to one in and after the introduction year of ESUG (2011). T-statistics based on Huber/White robust standard errors clustered by firm are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A description of all variables can be found in Appendix B.

Appendix E.: Definition of variables.

Variable	Description
Main variables	
INTEREST	Interest paid divided by total debt excluding provisions and accruals. *Source: Amadeus*
ICC	Internal cost of capital based on the average of the respective internal cost of capital measures defined by Claus and Thomas (2001), Gebhardt et al. (2001), Ohlson and Juettner-Nauroth (2005), Easton (2004) and Pástor et al. (2008). *Source: Proprietary database*
TREATED	Dummy equal to one for each firm in the treatment group and zero for each firm in the control group.
POST	Dummy equal to one in and after the year of the respective corporate restructuring reform.
TREATED x POST	Interaction of TREATED and POST equal to one for treatment firms in and after the year of the respective corporate restructuring reform.
Bef3	Dummy equal to one three years before the respective reform.
Bef2	Dummy equal to one two years before the respective reform.
Bef1	Dummy equal to one one year before the respective reform.
T0	Dummy equal to one in the year of the respective reform.
Aft1	Dummy equal to one one year after the respective reform.
Aft2	Dummy equal to one two years after the respective reform.
Control variables	
LEVERAGE	Total debt divided by total debt plus book value of equity. *Source: Amadeus*
SIZE	Natural logarithm of total assets. *Source: Amadeus*
TANGIBILITY	Fixed assets divided by total assets. *Source: Amadeus*
PROFITABILITY	EBITDA divided by total assets. *Source: Amadeus*
NET WORTH	Total shareholder funds minus cash divided by total assets. *Source: Amadeus*
GDP GROWTH	Difference in GDP versus the previous year divided by GDP in the previous year. *Source: World Bank*
STOCK MARKET	Stock market size divided by GDP. *Source: World Bank*
INFLATION	Inflation rate in the respective year. *Source: World Bank*
IC RATIO	Operating profit divided by interest paid. *Source: Amadeus*
Z-SCORE	Altman Z-Score based on Altman (1968) *Source: Amadeus*
BOOK TO MARKET	Total shareholder funds divided by market equity. *Source: Amadeus, Worldscope*

Appendix F.: Interest: Staggered difference-in-differences regressions with ICC sample.

Model	(1)	(2)	(3)	(4)
Reform window	[-3;+2]	[-2;+1]	[-3;+2]	[-2;+1]
Dep. variable:	INTEREST			
TREATED x POST	**0.008****	**0.006***	**0.008****	**0.004**
	(2.836)	**(2.255)**	**(2.961)**	**(1.049)**
LEVERAGE			-0.047**	-0.085**
			(-3.033)	(-3.237)
SIZE			-0.007	-0.027
			(-0.578)	(-1.430)
TANGIBILITY			0.038	0.042
			(1.705)	(0.834)
PROFITABILITY			0.017	0.031
			(0.850)	(1.489)
NET WORTH			-0.029	-0.045
			(-1.381)	(-1.571)
Constant	0.036**	0.030	0.175	0.579
	(2.920)	(1.312)	(0.895)	(1.704)
Observations	5,154	3,437	5,154	3,437
Number of firms	1,046	1,018	1,046	1,018
Within-R^2	0.0237	0.00896	0.0310	0.0379
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

The table presents coefficients from staggered difference-in-differences regressions using the ICC sample. INTEREST, i.e., cost of debt, is the dependent variable. The sample is restricted to observations in the time window around the introduction of respective insolvency law reforms fostering corporate restructuring presented in column titles. TREATED is a dummy variable set to one for treatment firms, and zero otherwise. Treated firms are firms from EU15 countries that implemented an insolvency law reform fostering corporate restructuring between 2008 and 2014. Control firms are from EU15 countries that did not implement any insolvency law reform over the same period and are matched based on the included control variables and exact industry. POST is a dummy variable set to one in and after the introduction year of each reform. All models are firm and year fixed effects regressions. T-statistics based on Huber/White robust standard errors clustered by country are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A description of all variables can be found in Appendix E.

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