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Fostering the entrepreneurial development through the bankruptcy institution:

an empirical approach for European countries

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Abstract

This thesis proposes a comprehensive study of the bankruptcy issue, highlighting the forces that, at diverse levels, guide the restructuring process of insolvent firms in turn conditioning economic activities. A deep understanding of the bankruptcy topic allows *ex-post* in discerning the factors that facilitate the recovery process of defaulted firms, and *ex-ante* in developing preventive mechanisms for strengthening the economic fabric and thus prompt the economic growth. Delving into financial and into law and economics literature, the three chapters of this thesis analyse the bankruptcy topic from diverse corners of investigation. Chapter I assesses how creditors of insolvent firms address the causes of firm's default complementarily to financial and accounting figures for their decision on the debt restructuring plan, thus determining firm's exit way from the bankruptcy procedure, i.e. reorganization, acquisition or liquidation. Chapter II, deepening at the individual level of the actor in charge of enforcing the bankruptcy law, the judge, investigates how the individual characteristics of lay judges affect the financial performance of the bankruptcy procedures they supervise in terms of debt recovery rates. Chapter III, through a cross-country analysis of bankruptcy codes and developing an original set of legal indexes, individuates the distinct normative provisions of reorganization and of liquidation procedures that concur in jointly stimulating entrepreneurial growth and credit supply by financial institutions. The results of this dissertation demonstrate how the several factors guiding the bankruptcy process combine, determining the likelihood for successful firm and debt restructuring. Moreover, they confirm as bankruptcy law conforms as an effective tool of economic policy to enhance economic growth. The findings may thus support the diverse actors involved in the insolvency affairs for a more efficient as well as effective conduct of the restructuring process, hence favouring the prospects for adequate settlements to firm's insolvency, and policymakers for the optimization of bankruptcy codes to strengthen the economic and production systems and thus prompt economic growth. This thesis contributes to the financial and to the law and economics literature developing a comprehensive approach for the study of the bankruptcy topic, illustrating the factors that guide the bankruptcy issue and suggesting the means for tackling it.

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Introduction

> "Just as medical science would be unlikely to progress by studying only healthy individuals, organization science may be limited in the knowledge attainable only from the study of successful firms" (Thornhill and Amit, 2003, p. 506).

Insolvency is a possible natural stage of a firm's lifecycle. The European Commission reports estimates of 200.000 firms going bankrupted yearly in the EU, resulting in 1.7 million of direct job losses every year[1], and it calculates that the annual total insolvency proceedings costs in the EU amount to € 895 million for domestic proceedings and to € 70 million for cross-border proceedings.[2] These numbers underscore how much the issue of businesses' failure and of their rescue is of vital relevance for the strengthening of the EU economic system. In this regard, also following the legislative actions of the European Union in the area of insolvency – I emphasise the Commission Recommendation 2014/135/EU on a new approach to business failure and insolvency, and the recent Directive (EU) 2019/1023 of the European Parliament and of the Council on preventive restructuring frameworks, on discharge of debt and disqualifications, and on measures to increase the efficiency of procedures concerning restructuring, insolvency and discharge of debt, and amending Directive (EU) 2017/1132 (Directive on restructuring and insolvency) – several European countries have been amending their bankruptcy codes in the recent years toward more rescue-oriented frameworks, while consolidating prevention mechanisms.

Concurrently, scientific research has long being studying the diverse factors affecting the debt restructuring process of insolvent firms. A series of works focuses on the features of the insolvent firm, mainly on its accounting and financial factors, as its leverage, its profitability, the sustainability of its debt, or the type of assets (e.g. Franks and Torous, 1994; Denis and Rodgers, 2007; Brown et al., 1994; Jostarndt and Sautner, 2010; Gilson et al., 1990). The main aim of these relevant contributions is to understand how such firm's factors condition chances for successful debt renegotiation.

A second stream of investigation deepens at the level of the actors involved in the restructuring process, with some works focused on the role of the judges administering the

[1] European Commission, Procedure 2016/0359/COD (Co-decision procedure). Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on preventive restructuring frameworks, second chance and measures to increase the efficiency of restructuring, insolvency and discharge procedures and amending Directive 2012/30/EU.

[2] European Commission, November 2016. Impact assessment study on policy options for a new initiative on minimum standards in insolvency and restructuring law. Directorate-General for Justice and Customers, Contract No. JUST /2015/JCOO/FWCIVI0103.

bankruptcy litigations (e.g. Weiss and Wruck, 1998; Evans, 2003; Blazy et al., 2011; Bernstein et al., 2019; Iverson et al., 2020). These works highlight how judicial decisions can affect the unfolding of insolvency proceedings and their outcome.

A third stream of research instead positions itself at a macro-level, exploring how the normative provisions of bankruptcy codes affect economic activities, as a country's entrepreneurial turmoil (e.g. Armour and Cumming, 2008; Peng et al., 2010; Lee et al., 2011; Lee and Yamakawa, 2012; Estrin et al., 2017) or credit concession by financial institutions (e.g. Scott and Smith, 1986; Berkowitz and White, 2004; Cerqueiro et al., 2016).

Given this background, the three chapters of the thesis are positioned in the three mentioned streams of financial research. Chapter I investigates how Soft Information (SI) on the causes of firm's default complements Hard Information (HI) – accounting and financial figures – in driving creditors' decision on the firm's exit way from the bankruptcy procedure (reorganization, acquisition or liquidation). Financial literature identifies HI and SI as the two types of information through which creditors reduce information asymmetry with debtors; yet, bankruptcy literature focuses mostly on the first as a driver of creditors' choices in bankruptcy. Chapter II examines the linkage between the individual characteristics of lay judges and the financial performance of the bankruptcy procedures they supervised in terms of debt recovery rates. Indeed, several works relate judicial decisions to some measures of performance of the bankruptcy process; yet, this literature misses to explain what guides judges' decisions, and how this in turn affects the financial outcome of the bankruptcy process. Chapter III examines how distinct legal features of reorganization and of liquidation procedures can concur in jointly stimulating entrepreneurial growth and bank financing. Indeed, previous literature mostly envisaged a trade-off between entrepreneur-friendly bankruptcy systems to stimulate entrepreneurship and bank lending. Yet, prior analyses remained prevalently at the level of the overall country's insolvency framework, without delving deeper on the differences emerging between the provisions characterizing reorganization and liquidation procedures and on their diverse effects onto entrepreneurship and credit supply.

Thus, through the three chapters, adopting a quantitative approach, this thesis aims answering the following questions:

1) How does soft information on the causes of firm's default affect its exit way from the bankruptcy procedure as emerging from the creditors' decision?

2) How do lay judges' individual features affect the financial performance of the bankruptcy process in terms of debt recovery rates?

3) Which are the distinct features of reorganization and of liquidation procedures that permit to jointly stimulate both entrepreneurial growth and credit supply?

Concerning the first, as anticipated financial literature recognizes Hard Information (HI) and Soft Information (SI) as the two types of information through which creditors contain information asymmetry with debtors. Kahl (2002) argues that in the debt restructuring context creditors' decisions depend on the type of information at their disposal. The wider the information creditors have, the more their decisions will be effective, thus sustaining business' going concern in presence of potentially attractive growth opportunities and liquidating otherwise. The paper presented in Chapter I argues that, in the bankruptcy context, the causes of firm's default are a type of SI assuming a significant importance that serves creditors to figure out the economic viability of the distressed firm. The causes of firm's default indeed emerge in bankruptcy papers thanks to the audit on the firm conducted by the bankruptcy practitioners appointed by the court. Bankruptcy literature identified several HI factors affecting the debt restructuring process, as the firm's leverage (Franks and Torous, 1994; Jostarndt and Sautner, 2010), its profitability (Denis and Rodgers, 2007; Blazy et al., 2014), the sustainability of its debt (Brown et al., 1994), the type of assets (Gilson et al., 1990), as well as the sectorial performance (Denis and Rodgers, 2007; Collett et al., 2014). Advancing a set of hypotheses, the paper argues that the role of HI factors in guiding the debt restructuring process as acknowledged by the literature can differ depending on the causes of default (SI) they combine with. Econometrical analysis is performed on a dataset of Italian Small and Medium Enterprises that faced the bankruptcy process between 2011 and 2016, extracting the causes of default that affected them through the manual analysis of the legal documents of the proceedings. The results demonstrate that creditors address the causes of firm's default (SI) for their decision on the debt restructuring plan complementarily to financial and accounting figures (HI), and that causes of default and financial and accounting factors jointly concur in shaping the conditions for a reorganization, an acquisition or a liquidation outcome. Indeed, the findings show the conditions under which creditors' awareness of the causes of firm's default may prevent a liquidation at the end of the bankruptcy process. Moreover, the causes of default have different impacts on the likeliness for a reorganization or an acquisition outcome. For instance, when strategical mistakes manifest in conjunction with a higher firm's leverage chances for an acquisition outcome increase, whereas this does not affect the likelihood for a reorganization outcome; instead, issues in the production system hamper the effect of firm's profitability, decreasing chances for a reorganization outcome, whereas this does not affect the likeliness for an acquisition. This work contributes to financial literature showing to what extent addressing the synergy between the SI on the causes of firm's default and its HI may increase our knowledge on how creditors decide in bankruptcy, and

on the expected firm's exit way from the bankruptcy process. The findings of the research can support managers of insolvent firms in identifying the circumstances under which likeliness for business going concern is higher, in relation with firm's actual accounting and financial figures and causes of default. This can increase their chances to achieve creditors' support to business continuation through bankruptcy. The results may also guide insolvency practitioners as well as the court in outlining the most appropriate firm's exit path from the bankruptcy process in relation with its actual state of distress. Furthermore, as Blazy et al. (2013) demonstrate that creditors' recovery rates are higher, averagely, under business' reorganization compared to liquidation, the results provide worthy insights to creditors on the conditions under which business' going concern is more likely and thus, indirectly, recovery rates are expected to be higher. All this facilitates the research for a shared settlement to the firm's crisis, permitting a more effective as well as efficient conduct of the bankruptcy process, diminishing its duration and costs.

The second research question aims at inserting in the discussion of that stream of law and finance literature on bankruptcy that studies the role played by the court in the resolution of the debt restructuring process. Indeed, given the pivotal role that the court has on the bankruptcy procedure, several works examine how judges' decisions relate with the outcome of the debt restructuring process. Bernstein et al. (2019) study how judges' decisions to convert Chapter 11 bankruptcy lawsuits into Chapter 7 liquidations impact onto the allocation and subsequent utilization of firms' assets in bankruptcy. Weiss and Wruck (1998) discuss as the outcome of the U.S. Chapter 11 process can be strongly affected by the judges' deliberative actions, concluding that the bankruptcy system should protect the value of the debtor's assets also from judges' misguided decisions. Diversely, Evans (2003) demonstrates that judges' discretionary actions are just sometimes related to Chapter 11 outcomes. Iverson et al. (2020) report that judges' judicial inexperience negatively impacts onto creditors' recovery rates. On the European front, Rodano et al. (2016) and Melcarne and Ramello (2020) discuss the beneficial effects of more efficient bankruptcy courts, within an Italian setting. Blazy et al. (2011) show how the decisional power that the French bankruptcy code provides to the judges leads them to privilege bankruptcy outcomes safeguarding the employment even if partly detrimental for debt recoveries. Yet, as anticipated, this line of investigation misses somehow to explain what guides judges' decision making, in turn affecting the financial performance of the bankruptcy process. Still, some authors in the field of law (e.g. Sharfman, 2005; Rachlinski et al., 2006; Wistrich et al., 2015) argue that the deliberation of bankruptcy judges is driven by individual biases that affect the cognitive process through which they interpret a case (yet without linking such individual biases to the financial performance of the bankruptcy process).

Attaining from such relevant contributions, the paper proposed in the Chapter II of the thesis goes one step deeper, relating a series of individual features of lay judges – namely, their education, their skills within a field, their professional experiences, their involvement in the business community – to the financial performance of the bankruptcy procedures they supervised in terms of debt recovery rates. The link between such judges' individual traits and the financial performance of bankruptcy constitutes, at the best of my knowledge, an element of novelty for the literature. Respect previous works, thus, the paper suggests that the human factor represented by the lay judges' individual features conforms as an additional source of uncertainty for the insolvent firm and its creditors, which can affect the litigants' decision making in bankruptcy.

The research focuses on a dataset of 223 French insolvency proceedings and on the individual profiles of the 61 lay judges that administered them in the period 2006-2012. Manually analysing bankruptcy documents and collecting information on the judges' profiles, through econometrical analysis evidence is provided on the lay judges' individual factors affecting the debt recovery rates. Recovery rates significantly increase when judges possess specific financial-accounting skills and general management skills, when they had professional experiences in for-profit organizations as well as in firms that went bankrupt and when they are more interactive in terms of digital professional networking. Vice versa, recovery rates significantly decrease when judges possess specific legal skills, when they had professional experiences in non-profit organizations as well as when they show a higher proximity to the business community in terms of mandates held in diverse organizations. Results also suggest that a higher women presence in the panel of judges may be beneficial for increasing the quality of proceedings' administration via more equilibrated decisions.

The findings confirm as a microeconomic examination of the judiciary is needed to fully assess the performance of a bankruptcy system. The results, thus, provide elements to the firm's managers, the creditors, the insolvency practitioners to appraise the human traits that can influence the bankruptcy process. A deeper awareness of the human factors affecting an insolvency proceeding may facilitate the confrontation among the diverse parties, increasing chances for successful debt renegotiation. In addition, lay judges' cognition of the individual factors potentially affecting their decisions can lead them toward more adequate rulings in relation with the actual case. All this is expected to increase the efficacy and efficiency of the bankruptcy process. Furthermore, the identification of such judges' factors represents an opportunity for the legislator to design the bankruptcy system so to profit from those with beneficial impacts on its performances.

Respect previous important contributions, the study proposes a new perspective of investigation that transcends the legal provisions of insolvency codes shaping judicial discretion to

deepen at the individual level of the actor in charge of enforcing the law, the judge. The research contributes to the law and finance literature on bankruptcy through a micro-examination of such pivotal actor, suggesting that in the study of bankruptcy systems not only it should be considered how bankruptcy codes are designed, but also how they are enforced.

As for the third research question, the paper presented in Chapter III aims entering the ongoing debate within bankruptcy literature on the trade-off between entrepreneur-friendly bankruptcy systems to stimulate entrepreneurship and credit concession by banks. Indeed, several works suggest that entrepreneur-friendly bankruptcy systems positively affect entrepreneurial development, lowering entry barriers for new business creation thanks to the reduction of the downside risk associated to default (Fan and White, 2003; Armour and Cumming, 2008; Peng et al., 2010; Lee et al., 2011). Yet, concurrently, some others highlight that such lenient measures lead to an increase of the risk burden on credit institutions, which respond tightening the conditions for access to credit, which in turn may negatively affect entrepreneurial growth (Scott and Smith, 1986; Berkowitz and White, 2004; Araujo et al., 2012; Cerqueiro et al., 2016). Bankruptcy law is thus expected to find the right design for balancing these two apparently contrasting forces. Yet, as Blazy et al. (2013) highlight, most of previous works remain at the level of the overall country's insolvency framework, missing the granularity proper of bankruptcy codes which usually are composed as a set of diverse procedures, with some dedicated to business reorganization and some to liquidation (La Porta et al., 1998; Estrin et al., 2017).

Morrison (2007) indicates that entrepreneurs are tendentially biased toward business reorganization and creditors toward its liquidation. On a similar line, Estrin et al. (2017) suggest that, as entrepreneurs and creditors are sensitive to diverse elements of the bankruptcy law, a granular study of bankruptcy codes allows to define optimized legal provisions to spur both entrepreneurship and credit supply.

Following such contributions, the third study of my thesis argues that such granular study of bankruptcy codes requires to analyse how reorganization vs. liquidation provisions differ, diversely affecting entrepreneurship and bank financing. The aim of the paper is thus twofold. Firstly, the research develops original legal indexes capturing the legal features of the different reorganization and liquidation procedures comprised in national bankruptcy codes. At this aim, the study involved a working group of bankruptcy practitioners and academics in 12 European countries and in the U.S. as well as the support of Insol Europe (the European organization of professionals specialized in insolvency). The output of this first part of the work is a Principal Component Analysis mapping the differences among the reorganization and the liquidation procedures of the studied countries. Reorganization procedures appear more flexible and reserve a higher decisional power to the

shareholders compared to liquidation ones, conditions that facilitate business reorganization. Liquidation procedures result instead more protective of the value of the firm's assets and of the secured and unsecured claims, with secured creditors benefitting from a higher rank (averagely) compared to the other classes of claimants, and provide for greater coordination among stakeholders, conditions that should ease the repayment process and allow for higher debt recovery rates.

Secondly, econometrical analysis implements the legal indexes in cross-country analysis of bankruptcy codes for the period 2007-2017 to explain entrepreneurial development and credit supply by banks. The results show that under both reorganization and liquidation frameworks conferring a higher control over the decisional process to the firm's creditors (secured and unsecured) while reserving some decisional power to the shareholders too, enhancing the protection of firm's assets and of creditors' claims, and providing secured creditors with a higher rank in the repayment process permit to both spur entrepreneurial growth and to stimulate bank financing, without impairing nor the creditors or the debtor. Such normative provisions contribute, under reorganization procedures to shape a more business-friendly environment, favouring the prospects for business reorganization, and under liquidation procedures to facilitate the debt recovery process while recognizing higher recovery rates to creditors. This positively affects both entrepreneurial growth and bank lending.

The analysis converges toward the discussion of Eklund et al. (2020) in that bankruptcy legislation does not limit itself to regulating business failure, but indeed it constitutes an effective tool of economic policy for strengthening economic growth. The findings, thus, demonstrate as dissecting the distinct effects of reorganization and liquidation frameworks permits to individuate normative provisions that concur in spurring both entrepreneurial development and credit supply, overcoming the abovementioned trade-off that previous literature envisaged (e.g. Armour and Cumming, 2008).

To the best of my knowledge, this study, opening the box of the countries' insolvency frameworks, is the first to perform a cross-country analysis of the different types of reorganization and liquidation procedures contained in the bankruptcy codes of several countries. The research contributes to the law and economics literature developing original legal indexes capturing the differences between reorganization and liquidation procedures and individuating the features of bankruptcy codes which are beneficial for both stimulating entrepreneurial growth and easing access to credit. The study thus participates to the debate on an institution-based view of entrepreneurship, as depicted in the context of bankruptcy by the investigations of Armour and Cumming (2008), Peng et al. (2010) and Lee et al. (2011). The results may constitute serious hints

for policymakers for the optimization of bankruptcy codes to both promote the entrepreneurial spirit and encourage the supply of credit, with expected beneficial effects onto economic growth, employment and innovation.

The three chapters also illustrate the promising further advancements of the research.

To conclude, a deep understanding of the bankruptcy topic reveals vital in two main ways. *Ex-post*, as increasing our knowledge in this field helps in discerning the factors that facilitate the recovery process of many firms that every year face this natural stage of their lifecycle. *Ex-ante*, because grasping what characterizes firm's default permits to design preventive mechanisms for the strengthening of economic systems, thus spurring economic growth.

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Chapter I

How does Soft Information on the causes of default affect debt renegotiation? An empirical study of in-court debt restructuring of Italian SMEs

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Abstract

Financial literature identifies Hard Information (HI) and Soft Information (SI) as the two types of information through which creditors reduce information asymmetry with debtors. This work studies how creditors of insolvent firms facing the bankruptcy process rely on SI on the causes of firm's default complementary to HI – accounting and financial figures – for their decisions on the debt restructuring plan thus determining firm's exit route from the in-court procedure (reorganization, acquisition or liquidation). We focus on a dataset of Italian Small and Medium Enterprises that faced in-court debt renegotiation between 2011 and 2016, extracting the causes of default that affected them through the manual analysis of the proceedings' documents. We argue and demonstrate that the interaction between the SI on the causes of firm's default and HI has a significant role in guiding creditors' vote over the debt restructuring plan, thus affecting chances for business' going concern through bankruptcy. Results from multinomial logistic regression demonstrate that the role of acknowledged HI factors in guiding the debt renegotiation process can differ depending on the causes of default they combine to, and that causes of default and HI factors jointly concur in shaping the conditions for an acquisition, a reorganization or a liquidation as result of creditors' decisions. For instance, chances for acquisition increase for more levered firms that suffered from strategical mistakes, whereas issues in the production system reduce chances for business' reorganization even for relatively more profitable firms. We contribute to financial literature showing to what extent addressing SI on the causes of firm's default in relation to financial and accounting factors may increase our knowledge on how creditors decide in bankruptcy, and on the expected firm's exit path from the in-court procedure.

Keywords: Bankruptcy, Debt renegotiation, Causes of default, Soft information, SME, Multinomial logit
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1. Introduction

This paper investigates the complementary role of soft and hard information in affecting the bankruptcy outcome of in-court procedures.

According to the financial literature, we can distinguish between two types of information through which creditors may reduce their information asymmetry with debtors (Boot, 2000; Uchida, 2011; Uchida et al., 2012): hard information and soft information. Hard information (HI) on debtors gathered from accounting and financial reports does not require a strong creditor-debtor relationship. Soft information (SI), differently, "is not easily quantified and consists of information gathered over time through contact with the firm, the firm's management/entrepreneur, the firm's suppliers and customers, and other local sources" (Uchida et al., 2012, p. 97). Focusing on the specific set of information on the causes of the firm's default, this research investigates whether the combination of the two types of information may affect the creditors' choice of the bankruptcy outcome.

The dichotomy between SI and HI found relevant applications in the financial field. Several authors (e.g. Stein, 2002; Berger and Udell, 2002; Berger et al., 2005) apply it to explain the relationship lending vs. transaction-based lending dichotomy, evincing the prevalence in the use of SI for relationship lending and of HI for transaction-based lending. Others apply it in the context of credit risk management. Uchida (2011) finds that Japanese banks rely on SI when evaluating credit concession and Cenni et al. (2015) show a similar result. Cornée (2019) demonstrates that addressing SI may substantially improve credit default predictions, and that this effect is higher for opaquer borrowers as could be the case of smaller firms.

This fruitful evidence on the application of SI and HI to explain lending decisions mostly focuses on performing loans, investigating how the different types of information on the debtor affect the lending decision.

The literature focusing on the SI-HI role in the bankruptcy phase, when the lending relationship deteriorates and debtor's insolvency arises, is scant. We claim that if both the SI and HI are valuable for the lending concession, they should be valuable for the insolvency resolution too. In other words, if they both affect the credit concession choices they should also affect the credit renegotiation choices. Specifically, we state that these two types of information are synergic and therefore, differently from prior bankruptcy literature, their joined effect on the renegotiation outcome should be investigated.

In the bankruptcy context, recent papers consider how the firm's causes of default affect the debt restructuring process. Blazy et al. (2011, 2013) control for the causes of default extracted from

legal bankruptcy papers to study how French judges in bankruptcy balance between employment preservation and debt repayment, and to compare debt recovery rates under French and English insolvency codes, respectively. Collett et al. (2014) analyse the effectiveness of the Finnish bankruptcy regime in promoting SMEs' recovery, linking firms' causes of default to turnaround actions. However, none of them investigated the role of the HI-SI complementarity in guiding creditors' decision on the restructuring outcome.

We rely on prior literature to define our HI and SI factors. The bankruptcy literature showed how some accounting and financial figures of the insolvent firm, such as its financial structure, its profitability, or the type of assets, may have an impact on debt renegotiation (Gilson et al., 1990; Franks and Torous, 1994; Denis and Rodgers, 2007; Jostarndt and Sautner, 2010; Blazy et al., 2014). We refer to these drivers as "HI factors". On another side, Uchida et al. (2012) report that SI includes assessments of the borrower's future prospects. However, in the context of business restructuring, the future prospects on the economic viability of the insolvent firm depend on the severity of the impediments to the business, that is, on the "causes of default" experienced by the firm. Therefore, the causes of default conform as meaningful SI in the bankruptcy context.

The causes of default are qualitative information hardly identifiable without a specific and accurate analysis. However, in the in-court debt renegotiation process, the insolvency practitioners are in charge to audit the insolvent firm. Their skills and expertise make the causes of default to come up through the legal papers and thus to become verifiable and available to all the creditors.[3] This improves the information set at creditors' disposal and thus the effectiveness of their decisions, i.e. sustaining the continuation of potentially viable businesses and liquidating the others. Kahl (2002) argues that in the debt restructuring context creditors' decisions depend on the type of the information at their disposal. The wider the information creditors have, the more their decisions will be effective, thus.

Therefore, we extend prior literature investigating how SI (causes of default) complements HI (accounting and financial figures) on the bankrupted firm to explain creditors' vote on the debt restructuring plan thus determining firm's exit route from the legal procedure (reorganization, acquisition or liquidation). We propose and then test a series of hypotheses in this respect. Since we have three different possible outcomes of the dependent variable, we test our hypotheses implementing a multinomial logistic regression. (e.g. Chatterjee et al., 1996; Denis and Rodgers, 2007) including the SI-HI interactions as main independent variables of the model.

[3] Out-of-court the access by all the creditors to information on the true causes of default may be limited, as no official audit by insolvency practitioners is prescribed.

Our dataset is composed of Italian Small and Medium Enterprises (SMEs) that faced in-court debt renegotiation between 2011 and 2016. We analysed all the bankruptcy proceedings started by 688 companies over the 7 different tribunals of the Italian Veneto Region.[4] Thanks to a collaboration with the Venice Chamber of Commerce, we inspected the archived bankruptcy files, gathering 4,965 bankruptcy documents from which we manually extracted the causes of firms' default.

Italy reformed its insolvency law in 2005, with the amended in-court procedure being similar to the U.S. Chapter 11. Companies entering the Italian in-court procedure must submit a restructuring plan to the vote of creditors, who have the power to accept it or reject it thus inducing firm's liquidation. Moreover, the procedure reserves the vote to unsecured creditors. This creates homogeneous incentives among voting creditors, making the Italian case particularly suitable for studying their voting decision as not related to their level of seniority.

In particular, the Veneto Region shows among the highest levels of institutional and industrial development at the country level. As such, our setting shows close similarities with the settings of other bankruptcy works where industrial and institutional development are high and where the bankruptcy procedure rests on a creditors' vote, as for the U.K. (Franks and Sussman, 2005), Germany (Brunner and Krahnen, 2008), the U.S. (Chatterjee et al., 1996; Franks and Torous, 1994), Belgium (Dewaelheyns and Van Hulle, 2008; 2009), Finland (Collett et al., 2014; Bergström et al., 2002). We believe that the approach developed in this paper can be reasonably applied to these and other similar contexts.

To analyse the legal documents and extract the causes of default, we used the taxonomy provided by Blazy et al. (2011, 2013). This taxonomy suits our research setting as it relies on causes of default reported in bankruptcy papers by SMEs facing in-court proceedings. Yet, in order to make our procedure as rigorous as possible, we applied the Gioia Methodology (Gioia and Chittipeddi, 1991; Gioia et al., 2012),[5] a systematic approach for new concepts development (see Gioia et al., 2012) applying to text analysis. Accordingly, two coders processed on their own the legal papers and generated two independent classifications of causes of default. Comparing the two lists we then converged toward a unique classification of seven causes of default, as for the one of

[4] The Veneto Region is one of the twenty Italian Regions, on the Norther-East side. The industrial strength of Italy is displaced in the Northern part of the country, which for 2016 accounts for the 55.9% respect the national GDP (22.6% was produced in the South and 21.5% in the Centre). The Veneto Region contributes to the 16.6% on the Northern production, being the third region in terms of GDP at the national level (9.3% of Italian GDP in 2016) [Data are from I.Stat Database, the online portal of Istat, the Italian National Institute of Statistics, publicly available at: *dati.istat.it/Index.aspx* (Access date: 10/09/2018)].

[5] The detailed description of the adopted coding procedure is presented in Section 5.2.

Blazy et al. (2011, 2013): Outlets, Strategy, Production, Finance, Management, Accident, External environment.

Overall, our results demonstrate that creditors rely on the causes of default (SI) for their decision on the debt restructuring plan complementarily to financial and accounting figures (HI). We show that the role of the HI factors in guiding the debt renegotiation process depends on the causes of default they interact with, and that causes of default and HI factors jointly concur in shaping the conditions for an acquisition, a reorganization or a liquidation outcome. Specifically, our findings show that the causes of default may prevent a liquidation at the end of the bankruptcy process. Moreover, the causes of default have different impacts on the reorganization and acquisition outcome probability. For instance, when strategical mistakes manifest in conjunction with a higher leverage chances for an acquisition at the end of the bankruptcy process increase, whereas this does not affect the chances for a reorganization outcome; instead, issues in the production system hamper the effect of firm's profitability, negatively affecting chances for a reorganization outcome, whereas this does not affect the likelihood for an acquisition.

Our findings support Kahl's (2002) assertions in that the effectiveness of creditors' decisions, that is, sustaining business' going concern in presence of potentially attractive growth opportunities and liquidating otherwise, depends on the type of information at their disposal. Expanding the information available to creditors, SI on the causes of firm's default allows for finer evaluations on the business' viability and thus on its recovery chances.

Our work contributes significantly to the bankruptcy literature showing to what extent the synergy between the SI and HI on the insolvent firm may affect the outcome of the debt restructuring process. Indeed, our results demonstrate how SI on the causes of default well complements HI to explain creditors' decisions in bankruptcy and indicate which combinations of SI and HI factors affect more the probability to incur a liquidation, an acquisition or a reorganization at the end of the in-court procedure. Our work thus extends the line of research of Blazy et al. (2011, 2013) and Collett et al. (2014) as we show that the causes of firm's default do not have an unequivocal impact on business' recovery chances, as their effect depends on the financial and accounting factors they combine to.

This result has relevant managerial implications. First, our findings inform managers of bankrupted organizations on the conditions fostering business' continuation and the creditors' support to firm's turnaround. Furthermore, our results provide with worthy insights also the bankruptcy administrators suggesting them the proper bankruptcy outcome according to the specific combination of financial and accounting figures and causes of default. Finally, this research makes a valuable contribution for creditors as well. In fact, Blazy et al. (2013) demonstrate as on average

higher debt recovery rates are expected from business restructuring respect to its liquidation. Our results may instruct creditors on the conditions under which continuation of the business is more probable and thus, indirectly, recovery rates are expected to be higher. This may facilitate the research for a shared solution to the firm's crisis, diminishing the duration and cost of the proceedings.

The rest of the paper is structured as it follows. Section 2 provides an overview onto the Italian institutional framework on enterprise insolvency; Section 3 presents the reference literature and poses our theoretical framework, developing the hypotheses of the research; Section 4 describes the data collection process and the coding procedure adopted for the extraction of the causes of default from bankruptcy documents; Section 5 presents our research method; Section 6 describes our dataset and reports results from econometrical analysis, including from robustness tests; the last section concludes, discussing our findings and illustrating the implications of the research.

2. The Italian Insolvency Law

Italian Insolvency Law (I.L.) presents a series of procedures differing by the degree of involvement of the judiciary authority. This is the result of a reform process that, started in 2005, revised the 1942 bankruptcy code (Royal Decree no. 267/1942), whose legal restrictions could impede potentially viable deals (Rodano et al., 2016), resulting into an inadequate system to face the current socioeconomic reality (Danovi et al., 2017). Other amendments were approved in recent years[6], concurrently with the overall European reform process of insolvency frameworks following EU normative action (we emphasize the EU Recommendation no. 2014/135 on a new approach to business failure and insolvency, and the recent EU 2019/1023 Directive on Restructuring and Second Chance).

The in force Italian bankruptcy framework embraces a debtor-oriented approach. Moving along a continuum (from lower to higher degrees of involvement of the judiciary authority), Italian I.L. disciplines private settlements with creditors (*Piani di risanamento*). Disclosure of out-of-court arrangements is facultative, so that trace of such procedures in public archives is scant. Art. 182-*bis*

[6] Italian Legislative Decree 27th June 2015, no. 83 introduces a minimum debt recovery rate of 20% that the restructuring plan must grant to unsecured creditors in case of liquidation (as hereinafter described, debt restructuring plans can provide also for a liquidation outcome). The firm unable to meet this requirement is redirected toward the full liquidation procedure. After the 2005 reform and till 2015 no minimum recovery rate was required. Yet, the low recovery rate often granted to unsecured creditors (sometimes even inferior to 5%), with the in-court procedure often used for liquidation purposes, led the legislator to introduce this requirement. Also, the Italian Legislative Decree 12th January 2019, no. 14 (*Codice della crisi d'impresa e dell'insolvenza*) provides for further amendments to the insolvency law introducing preventive mechanisms. Yet, the amended discipline is fully entering in force the 1st September 2021.

of the Italian I.L. regulates Troubled Debt Restructuring (*Accordo di ristrutturazione dei debiti*, hereinafter TDR). The TDR is a partially out-of-court procedure. The firm and the creditors converge onto a restructuring plan then deposited to the court for its ratification. The plan must be approved by a minimum of 60% of the voting claims and it must guarantee full repayment for creditors unfavourable to it. Deviations from Absolute Priority Rule (APR hereinafter) are allowed. TDR represents a less expensive procedure with respect to the full in-court one, with the role of the court centred in the ratification of the settlement. The full in-court procedure is known as Preventive Arrangement with Creditors (*Concordato preventivo*, hereinafter PACs), regulated by Art. 160 and seqq. of Italian I.L.. Admittance to the procedure is decided by the court; among other requirements, the company must not have applied to the same procedure in the two previous years and must prove its state of crisis. The automatic stay of assets is in force. The firm must deposit a restructuring plan respecting the APR that is submitted for creditors' vote. The plan is ratified by the court if it is voted by more than the 50% of the voting claims. Voting right is reserved to unsecured creditors who, belonging to the same class of seniority, are expected to have homogeneous incentives. This makes the Italian case particularly suitable for studying creditors' decisions in bankruptcy, as these do not appear related to their level of seniority.

Both for the TDR and for the PACs thus the decisional power over the reorganization plan is reserved to voting creditors. Accordingly, legal documents cover all the information needed for appropriate valuations on the plan. Indeed, the court appoints one or more insolvency practitioner(s) to audit the firm and draw up the necessary legal documents for the creditors, reporting, together with the firm's financial and accounting figures, the factors, events, or facts that caused the default. This is particularly true in the debt renegotiation plan and in the firm's petition for admission to the procedure. The activity of the insolvency practitioner(s) aims at retracing the company's history, with an especial focus onto the last most troubled years, identifying the causes inducing its default. The court supervises the entire process. The representation of the causes of default thus must be true and fair, also to avoid eventual contestation, especially by those creditors already aware of such causes.[7]

This makes these two procedures perfectly suitable for studying how creditors' awareness of the firm's causes of default, together with firm's financial and accounting figures, affects their decision on the restructuring outcome. Firm's exit path from the legal procedure depends upon the

[7] Some creditors may be already aware of the causes of default considering the long-lasting relational ties often linking SMEs to their creditors (as argued by Moro and Fink, 2013). Others may learn them directly from the legal documents. This does not affect our theory, as the creditors' awareness of the causes of default is formed anyway before their decision over the plan, and SI on the causes of default becomes in any case functional at their voting choice. Moreover, the fact that some creditors may know in advance the causes of default guarantees that the causes of default are reported fairly in the legal documents to avoid contestations, increasing the reliability of the information that these papers contain.

content of the restructuring plan, that may propose either a going concern or a liquidation outcome. The instrument is neutral toward one solution or the other: the general aim is promoting a shared solution to the firm's crisis, easing business' continuation – through both reorganization or acquisition – when possible and allowing for a liquidation outcome as well avoiding the full liquidation procedure. The full liquidation procedure (Art. 1 and seqq. Italian I.L.) is usually longer in time and less favourable for creditors in terms of recovery rates (Danovi et al., 2018). The substantial difference between the restructuring plan with a liquidation aim and the full liquidation procedure is that while the first one is a contractual solution between the firm and the creditors, providing for a creditors' vote with the debtor remaining in control of the firm throughout the process, in the second one piecemeal liquidation is enacted, coordinated by a trustee appointed by the court.[8] *Figure 1* offers a schematization of the Italian insolvency framework.

[Insert *Figure 1* here]

3. Literature Review and Hypothesis Development

3.1 Hard and Soft Information in Lending and Bankruptcy

The distinction between HI and SI is rooted in lending literature. HI is gathered on a borrower in absence of a strong creditor-debtor relationship, usually from accounting and financial documents, whereas SI is collected over time through contacts with the firm, its management, stakeholders or other local sources (Boot, 2000; Uchida et al., 2012). Typical examples of SI used in lending are managerial ability of firm's owners, firm's operating base and strength, mutual trust between firm and bank's loan officers (Uchida, 2011).

Different authors adopt the framework of HI and SI to study relationship lending in comparison to transaction-based lending. Stein (2002) argues that the documented tendency of a restraint in small-business lending following mergers in the banking industry can be explained by the higher costs mergers should undertake to process SI characterizing smaller firms in comparison to the more efficient processing of HI for larger companies. Berger and Udell (2002) discuss the importance for banks to develop relationship lending with small firms through gathering SI to reduce information problems in small firm finance, and Berger et al. (2005) show that smaller banks

[8] Full dispossession is provided also under Extraordinary Administration (*Amministrazione straordinaria delle grandi imprese in crisi*), which rules restructuring of larger enterprises following Italian Law (*Decreto Legge*) 347/2003. This procedure maintains a hybrid nature (it may be adopted either for going concern or liquidation purposes); under its provisions the enterprise is administered by one or more commissioners appointed by the Minister of Economic Development. The focus on larger enterprises and the formal involvement of the State provided under this procedure render it outside the scope of our research.

have better processing skills than larger ones. Still, others apply the HI vs. SI framework in the credit risk management field. Uchida (2011) finds that Japanese banks, especially when are under competitive pressure, heavily rely on SI when evaluating creditworthiness. Cenni et al. (2015) discuss how credit rationing depends by the quality of the firm-bank relationship, which depends on bank's ability to process SI. Cornée (2019) demonstrates the higher quality of credit default predictions that include SI, especially for opaque borrowers as small firms can be.

The above studies apply the HI and SI framework to performing loans and to lending relations, whereas the bankruptcy and restructuring phases remain still less covered. Bankruptcy research has a consolidated tradition in analysing how HI affects debt renegotiation and business recovery. Chatterjee et al. (1996) demonstrate that debt renegotiation decisions depend on the degree of firm's leverage, the severity of the liquidity crisis and the magnitude of the firm's economic distress. Jostarndt and Sautner (2010) observe how the probability of reaching a private agreement with creditors is greater for companies with a higher fraction of outstanding debt and for companies whose going-concern value is higher. Franks and Torous (1994) report that firms reorganized under Chapter 11 are less solvent and liquid before restructuring than firms that informally concluded a distressed exchange of publicly traded debt. The seminal paper of Gilson et al. (1990) demonstrates that private reorganization is more likely when many of the firm's assets are intangible and when most of debt is owned to banks.

Few studies are exceptions and provide a more specific support to the role that SI could have in the bankruptcy and renegotiation process. More in general, Kahl (2002) shows that it is unrealistic assuming that creditors have perfect information to seize the economic viability of distressed firms to choose accordingly between continuation and liquidation. Yet, the wider the information on the insolvent firm in creditors' possess and the more effective their decisions will be, thus sustaining the restructuring of viable businesses and liquidating otherwise.

In other words, the assessment of economic viability requires an understanding of both HI and SI, but, as it is clearly pointed out by the literature on lending, the latter requires an in-depth knowledge of the firm.

Whereas in normal conditions not all creditors could have access to SI, the bankruptcy context creates new opportunities. When the insolvent firm enters the bankruptcy proceeding, the court appoints an (or more) insolvency practitioner(s) to audit the firm. The work of the insolvency practitioner(s) consists of an in-depth analysis of the insolvent firm, that permits to bring to light the causes of business default. We claim that the causes of business default are an important type of SI

that, being made available to all creditors through bankruptcy papers, serves them to figure out the economic viability of the distressed firm.[9]

In this respect we contribute to the stream of literature on bankruptcy that used the causes of business default to explain the outcome of bankruptcy proceeding. Blazy et al. (2011) and Blazy et al. (2013) consider the causes of default of the firm facing the in-court procedure as extracted from bankruptcy files. Blazy et al. (2011) address such causes, together with firm's financial and accounting figures, to explain judges' decisions concerning the safeguard of employment for bankrupted firms; Blazy et al. (2013) instead tackle them when confronting French and English insolvency procedures in terms of debt recovery rates. The paper of Collett et al. (2014) links in-court turnaround actions with causes of business decline to evaluate the effectiveness of Finnish bankruptcy law in supporting SMEs' recovery.

Our incremental contribution consists of an innovative conceptual framework that enriches the current debate on factors affecting the bankruptcy outcomes. In doing this we also apply a pioneering methodological approach bringing to a renewed set of analysis. As for the former, the conceptual framework that we offer makes an extensive use of the interactions between specific aspects of SI and HI. We claim that in most circumstances the causes of firm's default (SI) contribute to the interpretation that a creditor gives to objective accounting and financial data (HI) to seize the firm's economic viability, guiding her/his voting choice on the restructuring plan thus determining firm's exit path from the in-court procedure (continuation or liquidation). For example, two companies can have the same leverage, but if the cause of default is different the effect of leverage on the decision of creditors can differ. As for the latter, since SI is less quantifiable, it is important to empirically define it in a way that is not controversial. For this purpose, we apply the Gioia methodology (explained in detail in Section 4.2) for the extraction of the causes of firm's default from bankruptcy papers.

3.2 Hypothesis Development: the combined effect of HI and SI on the bankruptcy exit way

Bankruptcy literature converges on some main HI factors that drive creditors' decision in debt renegotiations: leverage, debt sustainability, profitability, intangible assets, industry trends. Chatterjee et al. (1996) and Jostarndt and Sautner (2010) demonstrate that high-leverage firms have higher chances to renegotiate their debt privately with the creditors and avoid liquidation. Brown et

[9] Whereas other types of SI (as managerial ability of the firm's managers, mutual trust between the firm and the bank's loan officers) are excluded by the insolvency practitioner's audit and thus less available to the entire creditors' community, as such assuming a less relevant role in guiding their assessment over the business' viability.

al. (1994) prove that chances for a successful debt restructuring are lower when the sustainability of firm's debt is highly compromised. Denis and Rodgers (2007) and Blazy et al. (2014) show that insolvent firms having a better profitability face higher chances to restructure their debt and reorganize. Gilson et al. (1990) show that the probability to achieve a debt restructuring agreement with creditors is higher when the insolvent firm detains a larger portion of intangible assets. Collett et al. (2014) and Denis and Rodgers (2007) demonstrate that probabilities for successful business' reorganization are lower in presence of a turbulent sectorial environment.

For what concerns SI, Uchida et al. (2012) discuss as it involves assessments of the debtor's future prospects, which, under an insolvency context, we argue to depend on the severity of the impediments to the good functioning of the defaulted business. Blazy et al. (2011, 2013) name such obstacles as "causes of default", which thus conform as SI. Other types of information may be considered SI as well (as the managerial ability of the firm's managers, the mutual trust between the firm and its stakeholders). Yet, in bankruptcy proceedings the causes of firm's default are unearthed through the audit of the insolvency practitioners appointed by the court who report them in the legal files, thus constituting a qualitative but verifiable type of information, whereas other types of SI are excluded from the practitioner's examination (as anticipated in footnote 9). Moreover, they represent the new type of information available for all the creditors. Indeed, before bankruptcy is triggered, the access to such information may be partial as well as limited to a subset of creditors only (as the main bank, a few long-time suppliers). Outside the bankruptcy context, all creditors can have an easy access to firm's HI only (financial statements are stored in public archives), which returns a more quantitative yet partial picture of the insolvency issue. Instead, once bankruptcy is triggered, complete information on the insolvent company is released to the whole set of creditors thanks to the practitioners' audit (indeed, one of the advantages of in-court procedures respect out-of-court agreements concerns the higher availability of information produced). Kahl (2002) argues that in debt restructuring contexts the wider the information at creditors disposal and the more their decisions will be effective concerning business' continuation vs. liquidation. Following this line of reasoning, we argue that, in the in-court context, creditors rest both on HI and on SI on the causes of firm's default for their voting decision on the debt restructuring plan.[10]

We rely on the studies of Blazy et al. (2011, 2013) to group the causes of default in a taxonomy of seven causes of default: Outlets, Strategy, Production, Finance, Management,

[10] In making this assertion, we are implicitly excluding those bankruptcy legislations where the decision over the debt restructuring plan belongs to the court and not to the creditors (as for the French case, for instance). Courts' deliberative process may differ from the one that creditors undergo. As we will discuss in the concluding section, this represents a limitation of our work, which focuses on those contexts where the decisional power is reserved to creditors. Future works may investigate the role of SI in guiding debt renegotiations in those legislations where the decisional power does not belong to creditors.

Accident, External environment. *Table 1* reports the definition of each cause of default with the used taxonomy; the coding process adopted to extract the causes of default from the legal papers under analysis followed the Gioia methodology (Gioia and Chittipeddi, 1991; Gioia et al., 2012) and it will be described in detail in Section 4.2.

[Insert *Table 1* here]

Moreover, to preserve the deductive nature of scientific research, we tested only the interactions for which the financial literature provides a solid rationale to such a joint effect (SI on the causes of default and HI) on the decisions of creditors. An extension of this principle has implied also to exclude from our analysis the specific interaction of any HI factor with the SI *Finance* cause of default.[11] The reason for this appraisal derives from the nature and the composition of the two categories that overlap in most cases. For instance, the *Finance* cause of default includes the "high indebtment" level (see *Table 1*), but this could be a different way to refer to the leverage of the company or its debt sustainability, classified as HI (see *Table 2* presented hereinafter). Therefore, any effort to relate financial SI to HI could result controversial.

The combination of Leverage with Strategy cause of default

Several works study the role of leverage on the choice between private and legal solution, finding that high-leverage firms reach more easily an out-of-court settlement (e.g. Chatterjee et al., 1996; Jostarndt and Sautner, 2010). Moreover, the legal way seems the preferred solution to solve coordination issues among creditors (Gilson et al., 1990; Chatterjee et al., 1996). Yet, Kahl (2002) suggests that the role of leverage in debt renegotiations is not unequivocal, as high pre-distress leverage may be either a signal of economic viability of the company as it may diminish the likeliness for a debt-equity swap. For instance, Couwenberg and de Jong (2006), diversely from above-cited works, find that the leverage of firms that restructured successfully is lower, on average, respect that of firms unable to restructure.

More factors may affect the leverage of insolvent firms facing the in-court process; for instance, Acharya et al. (2011) demonstrate that divergences in bankruptcy codes may explain differences in firms' capital structure choices. Yet, we argue that also the causes of firm's default

[11] We also did not develop hypotheses on the interaction with the SI *Management* cause of default (i.e. causes of default related to poor management). Indeed, despite some authors (e.g. Carter and Van Auken, 2006; Collett et al., 2014) report management issues to be a serious driver of firm's default, *Management* appears to be an infrequent cause of default for our sampled firms (19 cases only), as our descriptive statistics highlight (Section 6.1). Therefore, any hypothesis testing involving the *Management* cause of default would have revealed unfeasible.

play a role in this sense, as addressing the causes of firm's default facilitate to discriminate the conditions for which higher leverage positively affects business' restructuring chances. Indeed, companies with similar financial structure may report different causes of default, and chances for business continuation through bankruptcy may thus differ.

Denis and Rodgers (2007) suggest that companies presenting higher leverage prior to the entrance in U.S. Chapter 11 are more likely to succeed in in-court restructuring. Their intuition is that high-leverage leads firms to go bankrupt in a shorter time even if still economically viable; low-leverage firms instead may go bankrupt after a long time of unprofitable business. High-leverage firms able to restructure financially may have a more solid business to count on for future cash flows. In this sense, bankruptcy is the result of a "combination of financial distress resulting from a suboptimal capital structure and/or economic distress associated with unprofitable operations" (Denis and Rodgers, 2007, p. 113).

This is indeed the case for companies that underwent unsuccessful strategies not compromising entirely the viability of the business. Companies in financial default that suffered from *Strategy* cause of default (e.g. the failure of a relevant project, or a bad investment) may be still economically viable and show higher chances for turnaround. In this same vein, the works of Barker and Duhaime (1997) and Sudarsanam and Lai (2001) argue as a correction in the strategies of a financially distressed firm increases the chances for a successful recovery. Thus, we pose:

***H1*:** The interaction between *Strategy* cause of default and firm's leverage positively affects chances for business' continuation through the in-court procedure.

The combination of Debt Sustainability with Production cause of default

Brown et al. (1994) proved that an important driver of the debt renegotiation process is the debt sustainability, as proxied by the ratio between EBIT and cost of financing, known also as coverage ratio. They report that in presence of a lower coverage ratio firms tend to liquidate more assets to repay it, and that firms filing for bankruptcy have a lower coverage ratio respect firms that avoid bankruptcy.

When the debt sustainability is higher, it seems easier for the insolvent firm to turnaround. Indeed, less pressure is expected from creditors for debt repayment and the firm may avoid assets' sales that could hamper its operativity. Yet, we believe that creditors also consider firm's ability to solve insolvency, which depends on the specific causes of default. A cause for which a difficult solution can be found within a reasonable time horizon may limit chances for turnaround even for firms whose debt is more sustainable.

Ponikvar et al. (2018) argue that chances for liquidation are lower for companies with a healthier production system. If insolvency relates to inefficiencies in the production system, the long time needed by the firm to fix it may induce creditors to prefer immediate recovery rates through piecemeal liquidation. Therefore, we expect that a cause of default related to a production issue negatively affects the impact of the debt sustainability on chances for firm's going concern through bankruptcy, and as such we pose the following:

***H2*:** The interaction between *Production* cause of default and the debt sustainability negatively affects chances for business' continuation through the in-court procedure.

The combination of Profitability with Production and External environment causes of default

Several authors proved the positive relationship between firm's profitability and chances for successful debt renegotiation with creditors (Denis and Rodgers, 2007; Blazy et al., 2014; Bergström et al., 2002). Higher future cash flows are expected from more profitable businesses, leading to higher expected debt recovery rates through business' going concern than through piecemeal liquidation. Still, we expect that chances of turnaround for such more profitable firms depend also on their ability to overcome their causes of default.

Ponikvar et al. (2018), as mentioned, highlight as likeliness to incur into liquidation is lower for firms having a healthier production system. As discussed above, when a firm faces severe issues in the production system, its operativity may be at risk. The firm may need to undergo a complex transition to a better production system requiring a long period of time. When firm's insolvency relates to issues in the production system, creditors may prefer immediate funds recovery through liquidation instead of waiting the long time the firm's turnaround may entail. Accordingly, we expect that a cause of default related to a production issue negatively affects the impact of firm's profitability on its chances for successfully restructuring through bankruptcy, and as such we posit:

***H3A*:** The interaction between *Production* cause of default and firm's profitability negatively affects chances for business' continuation through the in-court procedure.

The external environment surrounding the firm proved to affect the debt renegotiation process as well. Collett et al. (2014) and Denis and Rodgers (2007) show how chances for effective restructuring decrease in presence of a hostile external environment. When causes of default directly relate to the external environment, a sectorial upturn could be needed to turnaround the

firm. Creditors may so prefer recovery rates from an immediate liquidation respect waiting longer for an industry upturn. Therefore, we predict that a cause of default related to the external environment negatively affects the impact of firm's profitability on chances for business' continuation through bankruptcy, thus we pose:

***H3B*:** The interaction between *External environment* cause of default and firm's profitability negatively affects chances for business' continuation through the in-court procedure.

The combination of Intangible assets with External environment and Strategy causes of default

Gilson et al. (1990) highlight how intangible assets can face a relevant decrease of value under debt restructuring procedures. Also, the uncertainty onto intangible assets' value under piecemeal liquidation may drive creditors to hope in higher recovery rates from future cash flows through business' going concern. This may induce them to sustain firm's restructuring in presence of a larger portion of intangible and firm's specific assets. Yet, uncertainty may even increase when causes of default relate to an unstable external environment. Thus, under this situation of extreme uncertainty, creditors may prefer to commit on the continuation of the firm and its capability to generate cashflows higher than in the liquidation case. This option seems even preferable for unsecured creditors called to vote the plan, as they would probably get almost nothing from liquidation values of intangible assets. Thus, we propose:

H4A: The interaction between *External environment* cause of default and the amount of firm's intangible assets positively affects chances for business' continuation through the in-court procedure.

Barker and Duhaime (1997) and Sudarsanam and Lai (2001) argue as financially distressed firms able to undertake a correction in their strategies have higher chances to successfully recover. When causes of default relate to strategical mistakes, sound turnaround strategies may permit effective continuation of the business. We expect this to hold especially when the business relies majorly on firm-specific assets as in the case of intangibles, from which the firm may be the only subject able to extract the proper economic value. When larger portions of the firm's value rely onto intangibles, and causes of default relate to wrong strategical operations, we expect creditors to look for higher debt recovery rates sustaining business' turnaround. As such, we pose:

***H4B*:** The interaction between *Strategy* cause of default and the amount of firm's intangible assets positively affects chances for business' continuation through the in-court procedure.

The combination of Industry trend with External environment cause of default

Several authors demonstrate how chances for business reorganization decrease in presence of a turbulent sectorial environment (Collett et al., 2014; Denis and Rodgers, 2007; Dewaelheyns and Van Hulle, 2009). In other words, this means that a favourable sectorial trend facilitates chances for successful business' restructuring.

When firm's causes of default relate to the surrounding external environment, an industry's upturn may be needed to turnaround the business. In such scenario, creditors may be reluctant to allow for business' continuation, considering the long period a sectorial upturn may require and the prospect of unstable future cashflows, thus preferring recovery rates from piecemeal liquidation. Hence, we expect that a cause of default related to the external environment negatively affects the impact of the industry trend on chances for business' continuation through bankruptcy. We thus posit:

***H5*:** The interaction between *External environment* cause of default and the industry trend negatively affects chances for business' continuation through the in-court procedure.

4. The data

4.1 Collection process

Companies applying to the Italian bankruptcy procedure must submit their petition to the tribunal of the district in which the firm has legal residence. The Veneto Region has seven tribunals located in the cities of Venice, Padua, Verona, Vicenza, Treviso, Rovigo and Belluno. The Chamber of Commerce of Venice gathers the bankruptcy filings from all such tribunals. The Venice Chamber of Commerce made us available all the bankruptcy papers related to proceedings opened between January 2011 and September 2016. In total we gathered and manually examined 4,965 documents related to the bankruptcy procedures of 688 firms. Our data show that 651 firms applied to Preventive Arrangement with Creditors (PACs) and 37 to Troubled Debt Restructuring (TDR).[12]

[12] The Italian Ministry of Justice reports 18,731 PACs and 1,646 TDRs opened at the national level between 2011 and 2016, showing a proportion among the two instruments similar to the one we find. Danovi et al. (2018) attest that, in the period 2010-2016, approximately the 56% of Italian in-court procedures were opened in Northern Italy's courts.

For each firm we collected the legal papers going through each step of the procedure, such as: the firm's petition for admission, the restructuring plan, the minutes from creditors' vote and the final sentence of the court on the approbation or rejection of the restructuring plan. Drawing from these documents, we traced the causes of default applying the Gioia's method (see Section 4.2 below) and the firm's exit way from the proceeding, individuating three different outcomes: reorganization, acquisition, liquidation. We removed from the dataset the firms for which information on the causes of default was incomplete or missing (422 cases).

We then collected financial and accounting data through the AIDA Database (by Bureau van Dijk) and sectorial data from I.Stat (the official database of the Italian National Institute of Statistics). In case of missing data, we tried to retrieve the information by the Chamber of Commerce, dropping those companies for which these data were not available from any source (47 firms). We also removed two companies as outliers[13], three other companies since the procedure was still open at the time whereas 1 company exited the procedure as the plan was rejected. Furthermore, five more firms overpassed the EU SME dimensional requirements[14], so had to be removed as well.

Therefore, the clean final dataset is formed by 208 procedures consisting in 197 PACs and 11 TDR. Our dataset shows variety at the sector level as it includes the industry sector (46%), the commercial sector (29%), the service sector (20%) and other less represented sectors (5%) and it spans over a time period between December 2011-June 2016.[15] Accounting principles are the same for all the firms. All sampled firms are not listed. The 2005 bankruptcy framework applies for all the companies; for a minority of firms (29) the rule of "a minimum recovery rate of 20% to unsecured creditors in case of liquidation" holds (see footnote 6), and we control for it in our robustness tests.

[13] The two firms are part of the restructuring of a whole industrial group, for which data onto the other societies involved in the rescue are missing.

[14] Following European Commission Recommendation 2003/361/EC, a firm is considered:

- Micro when it presents less than 10 employees and, alternatively, turnover equal or inferior to 2 m € or balance sheet total equal or inferior to 2 m €;
- Small when it presents less than 50 employees and, alternatively, turnover equal or inferior to 10 m € or balance sheet total equal or inferior to 10 m €;
- Medium when it presents less than 250 employees and, alternatively, turnover equal or inferior to 50 m € or balance sheet total equal or inferior to 43 m €.

[15] We consider the date of the firm's petition to the Court for admission to the procedure.

4.2 Coding process of the causes of default

As clarified in Par. 2, the causes of firm's default are reported in the legal documents by the bankruptcy practitioners appointed by the court in their audit over the insolvent firm; the court supervises the entire process. To label the causes of default from the bankruptcy documents we relied on the classification proposed by Blazy et al. (2011, 2013), that identifies seven causes of default, namely: Outlets, Strategy, Production, Finance, Management, Accident, External environment.[16] Each cause contains more items (for instance, *Production* comprehends "Increasing costs of raw material", "High fixed costs", etc.). Yet, since some of the Blazy et al.' s (2011, 2013) items could possibly not well fit our context, we applied a rigorous coding procedure of the legal documents in order to control for possible divergences. Indeed, we adopted the strict prescriptions of the Gioia Methodology (Gioia and Chittipeddi, 1991; Gioia et al., 2012). This method has been designed to bring rigor in the inductive research, including the processing of archival material, as for the legal files we studied. Accordingly, two coders processed individually the same legal documents classifying the causes of default for the analysed firms independently from each other. We then compared the two classifications, computing the intercoder agreement measurement[17], equal to 0.84, thus suggesting strong agreement among the two coders on the causes of default that affected the firms under analysis (Fleiss et al. (2003) discuss as values closer to 1 signal high agreement among the coders, and Landis and Koch (1977) suggest that values between 0.81 and 1 indicate almost perfect agreement). We detected and deeply analysed each divergent case. The most complicated ones were also examined with the support of an experienced bankruptcy practitioner operating in the Veneto's Tribunals. For one specific case with a high level of complexity we consulted with the judicial liquidator appointed by the Court for that case.

We consequently made the two classifications to converge toward a unique classification of the causes of default for the studied firms. The final classification identifies 39 items grouped into the 7 mentioned causes. The full classification scheme with an extensive description of the content of each cause of default is reported above in *Table 1*. The adoption of such a rigorous coding procedure allowed us to enhance the robustness of our approach.

[16] We prefer the classification proposed by Blazy et al. (2011, 2013) respect the one of Collett et al. (2014) as the first, as for our case, relies on the causes of default as reported in bankruptcy documents for SMEs that faced the in-court procedure. Differently, the second is obtained from a review of the literature on turnaround and then perfectioned through questionnaires to court-appointed administrators. The classification of Blazy et al. (2011, 2013) results thus much more suitable for our research question.

[17] Tinsley and Weiss (2000) define intercoder agreement as "the extent to which the different judges tend to assign exactly the same rating to each object" (p. 98). Sandelowski (1995a) reports as a strong intercoder agreement suggests that the coded concept is not a mere figment of the coder's imagination, increasing the chances that the theme is valid. We compute intercoder agreement measurement as the ratio between the number of matching coding cases over the number of total coding cases. See Fleiss et al. (2003) for an in-depth discussion on intercoder agreement measurements.

5. Research method

According to our research framework, we test the effect of the interactions between firm's causes of default (SI) and HI factors on the firm's exit way from the in-court procedure, controlling for relevant firm-specific financial and accounting characteristics and for the sectorial performance. Therefore, as our dependent variable includes three alternative bankruptcy outcomes (reorganization, acquisition or liquidation), to correctly represent our set of hypotheses, we run a multinomial logistic regression (e.g. Chatterjee et al., 1996; Denis and Rodgers, 2007). Moreover, following the remarks of Baron and Kenny's (1986) seminal work for studying interaction effects among two variables (also known as "moderation" analysis), the explanatory variables include the interaction term as independent variable, that is, the product between the SI on a specific cause of default and a specific HI factor, as well as the two distinct variables (i.e. not interacted) to account for their direct effect on the dependent variable (the bankruptcy outcome); we also include a set of firm's financial-accounting factors as controls. Thus, in more formal terms, our general model is described by *Equation 1*:

$$Bankruptcy\ outcome_i = \beta_0 + \beta_1\ SI\ factor_i \times HI\ factor_{i\ (t-1)} + \beta_2\ SI\ factor_i + \beta_3\ HI\ factor_{i\ (t-1)} + \beta_4\ HI\ Controls_{i\ (t-1)} + \varepsilon_i \quad [1]$$

The dependent variable is $Bankruptcy\ outcome_i$ being the firm i's exit way from the in-court procedure, assuming value 0 if piecemeal liquidation occurs (liquidation), 1 if the firm is acquired (acquisition) and 2 if the firm is reorganized with no changes in the ownership (reorganization). The independent variable is the interaction $SI\ factor_i \times HI\ factor_{i\ (t-1)}$, where $SI\ factor_i$ and $HI\ factor_{i\ (t-1)}$ are, respectively, the firm i's cause of default and the firm i's financial-accounting factor at time ($t-1$)[18] – being t the year when the firm entered the bankruptcy procedure – for which we developed one of the above hypothesis on the existence of a synergic effect among the two. Thus, depending on the specific hypothesis tested:

- $SI\ factor_i$ relates to one of the following causes of default for the firm i: *Strategy*, *Production*, *External environment*.[19] According to Blazy et al. (2011), we define the cause

[18] Financial and accounting figures of the same year of bankruptcy triggering can be affected by operations related to the unfolding of the proceeding, making thus figures of the year before bankruptcy triggering more reliable to account for the financial/economic conditions of the firm at bankruptcy triggering.

[19] As discussed in Par. 3.2, for preserving the deductive nature of scientific research, we tested only the interactions for which the financial literature postulates a sound rationale to a joint effect on the decisions of creditors of SI on the causes of default and HI factors.

of default for the firm *i* as the natural logarithm of the number of items reported within that cause for the firm *i*[20];

- *HI factor*$_i$ is one of the following financial-accounting factors for the firm *i*:
  - *Leverage*, measured as (Book value of total liabilities/Book value of total assets);
  - *Debt sustainability*, measured as (Ebit/Interest expenses), as suggested by Brown et al. (1994);
  - *Profitability*, measured as (Ebitda/Total assets);
  - *Intangible assets*, measured as the natural logarithm of the amount of intangible assets;
  - *Industry performance*, measured as the growth rate of the industry's turnover between one to four years prior to firm's admission to the proceeding.

The other explanatory variables of the model are:

- the two variables composing the interaction term (*SI factor*$_i$ and *HI factor*$_{i\ (t-1)}$) considered singly (i.e. not interacted) to account for their direct effect on the dependent variable;
- *HI Controls*$_{i\ (t-1)}$, a set of financial-accounting factors for the firm *i* at time (*t-1*) that bankruptcy literature (e.g. Gilson et al., 1990; Brown et al.,1994; Denis and Rodgers, 2007; Jostarndt and Sautner, 2010) proved to impact the debt restructuring process, namely the firm's *Leverage*, *Debt sustainability*, *Profitability*, *Intangible assets* and the *Industry performance* as we defined them above (yet, depending on the hypothesis being tested, the one interacted with the specific cause of default assumes the role of *HI factor*$_i$) as well as the firm's *Size* (Total revenues of the firm), *Short-term debt/Tot. Debt* (the ratio between the firm's short-term debt and the firm's total debt), *Bank debt/Tot. Debt* (the ratio between the firm's bank debt and the firm's total debt).[21]

Finally, ε_i is the error term for the firm *i*. As such, for each model the cause of default and the HI factor interacted differ depending on the hypothesis being tested. *Table 2* reports the list of the model variables and their definition for the econometric analysis.

[20] We add 1 to avoid *Ln*(0) when no items are reported within the cause. Thus, for instance, if a firm reported that suffered from "Increasing costs of raw material" and from "High fixed costs", then the *Production* cause, that includes these two items, for this firm is defined as *Ln*(1+2) = *Ln*(3).

[21] Bankruptcy literature (e.g. Blazy et al., 2014; Chatterjee et al., 1996; Brown et al., 1994) indicates that the size of the firm, the duration of its liabilities and the proportion of bank debt affect the debt renegotiation process, yet it does not provide a sound rationale of a synergic effect of such HI factors with SI on the causes of default that may affect the decisions of creditors. As such, we control in the model for these HI factors yet without interacting them with the causes of default.

[Insert *Table 2* here]

As both the SI and HI factors refer to events antecedent respect to the conclusion of the legal procedure, reverse causality does not constitute a threat to our models. To control for outliers, we applied winsorization at 1% to all the implemented variables. In all our models, we checked for the assumption of the independence of irrelevant alternatives[22] (IIA assumption), a core assumption in multinomial logit regressions (see Cameron and Trivedi, 2005), implementing a Hausman test (Hausman and McFadden, 1984). The evidence shows that the IIA assumption is always satisfied. We computed the Variance Inflation Factors (VIFs) to check if a multicollinearity threat exists. Across all the models VIFs scores are always lower than 10, the commonly accepted threshold value indicating potential problems (Neter et al., 1996; Chatterjee and Hadi, 2006), with the highest average VIF across models equal to 2.65, suggesting that multicollinearity is unlikely to affect our analysis.

6. Empirical analysis

6.1 Descriptive statistics

All companies in our dataset are SMEs: 78 micro, 99 small and 31 medium enterprises, according to the EU classification (see footnote 14). In terms of economic sectors, our dataset is diversified and includes 41 different economic sectors[23]: the construction and the real estate sectors were the most involved (15.9% and 14.9% of cases, respectively), the wholesale sector is the third in terms of cases (10.6% of firms). The ten most represented sectors cover the 65.9% of cases. Considering the legal form, 187 companies are Ltd., 12 are joint-stocks, and the rest other less represented forms. Looking at the years of activity, the 10-20 years range is the one with more companies (27.9%), followed by the 20-30 and 30-40 (both 17.8%) and the band 5-10 (15.4%); the other companies are either younger than 5 years (10.1%) or older than 40 (11.1%).

Concerning the bankruptcy outcome, firms distribute among the three alternative forms according to the following frequencies:

[22] IIA requires that if an alternative x is preferred to the alternative y within the choice set $\{x, y\}$ (i.e. liquidation vs. reorganization, in our context), introducing a third option z (i.e. acquisition), so expanding the choice set to $\{x, y, z\}$, must not make y preferable to x. IIA is one of the conditions of Arrow's impossibility theorem (see Arrow, 1963).

[23] For the identification of the economic sectors the firms of our dataset belong to, we refer to the ATECO classification, the classification of economic activities adopted by the Italian National Institute of Statistics (ISTAT).

- *reorganization*: in 33 cases the business is reorganized with the incumbent ownership remaining in control of the firm;
- *acquisition*: in 89 cases the viable firm (or one/more operative units) is sold to third subjects and proceeds are used to repay creditors[24];
- *liquidation*: in 86 cases firm's assets are sold piecemeal.

Continuation of the business through the in-court procedure thus happens with the reorganization or the acquisition way. *Table 3* reports the data describing the structure of our dataset, and *Table 4* shows descriptive statistics for the selected accounting and financial factors (HI factors).

[Insert *Table 3* here]

[Insert *Table 4* here]

Looking at the causes of firms' default (SI), descriptive statistics are presented in *Table 5*.[25] The most relevant causes in terms of appearance are *External environment* (83.7%), *Finance* (73.1%), *Outlets* (39.4%) and *Strategy* (38.5%).[26] The prominence of the *External environment* cause of default can be reasonably related to the economic downturn that followed the 2009 economic crisis, in part overlapping with the studied timeframe (2011-2016). Focusing on the firm's size, *External environment* is reported between 80% and 90% for each dimensional category;

[24] If some operative units of the firm are acquired and some dismantled/liquidated piecemeal, according to the approach undertaken by the Italian jurisprudence, we qualify the case as liquidation when the liquidated part exceeds the acquired one. We base our conclusions onto the economic content of the debt renegotiation plans and thanks to the help of a judicial commissioner that supported us for the classification of more complicate cases. It is worth mentioning that Italian jurisprudence only distinguishes between liquidation and continuation, disciplined under different articles of the Insolvency Law. Till 2015 there has been a discussion within the Italian jurisprudence regarding the classification of the different cases under the continuation or the liquidation framework. This derives by the two different points of view that may be adopted. In fact, where part of the jurisprudence adopted the point of view of the economic entity (the firm), a second line of thought adopted the point of view of the incumbent entrepreneur/ownership. Embracing this second perspective, any form in which there is a dispossession of the assets (even so if the entire viable firm is sold to a third subject) may constitute liquidation. Since 2015 the jurisprudence has aligned to the point of view of the economic entity; as such forms of "indirect continuation" (*continuità indiretta*, i.e. acquisition) still constitute continuation. We align to this prevalent view, even for cases before 2015, again basing our conclusions onto the economic content of the plans and thanks to the mentioned support of an experienced judicial commissioner.

[25] For descriptive statistics, a cause is counted whenever a company reports at list one item contained in the cause. If more items for the same cause appear, the cause is still counted once (data on single items can be provided by the authors upon request). The value in parentheses represents the percentage of cases in which the cause appears within the total of the cases; the sums exceed 100% as a company may suffer from more causes of default.

[26] These values are defined considering the firms in the dataset altogether, thus do not appear in *Table 5* that divides the firms by bankruptcy outcome and by size.

Production is more relevant for medium firms (45.2%), than for Smalls (34.3%) and Micros (10.3%); *Strategy* is less mentioned by Mediums (22.6%), whereas its appearance almost doubles for Smalls (43.4%) and for Micros (38.5%). *Outlets* is more relevant for small and for medium firms (47.5% and 45.2%, respectively) than for micro ones (26.9%). *Finance* is almost equally mentioned by each category (between 71% and 75%).

Looking at firms' exit route from the proceedings, *External environment* and *Finance* are the most reported for the three outcomes. *Outlets* is more mentioned for the reorganization and acquisition outcomes (45.5% and 42.7% of cases, respectively) than for the liquidation one (33.7%), whereas *Strategy* is reported between 33% and 40% of cases for the three outcomes. *Production* appears more frequently for the acquisition outcome (34.8%) than for reorganization (21.2%) and for liquidation (20.9%).

Descriptive statistics thus highlight as there can be diverse causes of default affecting bankrupted firms. We test in the next section how SI on such causes complements financial-accounting factors (HI) in guiding creditors' decisions in bankruptcy.

[Insert *Table 5* here]

6.2 Econometric implementation and results

To test our hypotheses, we initially estimate a baseline model including the direct effects of the distinct variables composing the interaction term (the SI and HI factors) plus the controls. Then, we run the complete model in which we add the interaction term too.

Table 6 reports the results of the baseline models. Across baseline models, controls are in line with results from previous literature, with different significance levels between acquisition and reorganization. This is expected, as different SI and HI factors should have a different effect on the alternative bankruptcy outcomes. Specifically, the impact of leverage (*Tot. Debt/Tot. Assets*) is positively related to continuation through acquisition in all baseline models (in line with the results of Jostarndt and Sautner (2010) and of Chatterjee et al. (1996)), whereas it is negatively related to continuation through reorganization in Model 3. This is in line with Kahl's (2002) assertion, following which high pre-distress leverage may be either a signal of economic viability of the firm as it may reduce chances for a debt-equity swap. Denis and Rodgers (2007) argue as high levered firms may keep an economically viable business. Thus, we suggest that creditors may favour continuation of the viable business if a change in ownership occurs, a result proved by the financial

literature (Jostarndt and Sautner (2008) show how an intervention by financial creditors to resolve financial distress tends to be accompanied by shifts in ownership and management turnover).

At this stage, bank reliance (*Bank Debt/Tot. Debt*) does not affect the bankruptcy result. We can explain this thinking at the fact that the Italian PACs, that constitute the majority of cases in our dataset (similarly with above-reported national statistics), reserve the voting power to unsecured creditors, most of whom do not represent banks which often detain secured claims. The role of banks may thus result reappraised once in-court.

In the next subsections we analyse the results for complete models where we include the interaction term, testing for our hypotheses. Results are reported in *Table 7*.

[Insert *Table 6* here]

[Insert *Table 7* here]

Leverage

Model 4 shows results for *H1*, which poses a positive effect of the interaction between firm's leverage and *Strategy* on business' continuation chances. The interaction has a positive and significant impact on the business continuation through acquisition, supporting *H1*. This means that in presence of misguided strategic choices by a high levered business in default, creditors may support the research for a new ownership to restructure a still economically viable firm. This is in line with above-mentioned assertions of Denis and Rodgers (2007), arguing that highly levered firms may reveal a more economically viable business; strategical issues thus not compromising the overall business' viability may be overcome by a new ownership. Our results also confirm the findings of Jostarndt and Sautner (2008) showing that changes in ownership may be functional for the interventions by financial creditors to overcome financial distress.

Debt Sustainability

Model 5 reports econometrical results for *H2*, that poses a negative effect of the interaction between firm's debt sustainability and *Production* on business' continuation chances. The interaction between *Debt Sustainability* (*Ebit/Interest expenses*) and *Production* is negative and significant for the reorganization outcome. *H2* is so confirmed for business continuation through reorganization: creditors may perceive an excessive risk burden when assessing the sustainability of firm's debt in relation with a production cause of firm's default, leading them to be averse to the

reorganization way. This result is in line with Ponikvar et al.' s (2018) findings, showing that chances for liquidation are lower for businesses having a healthier production system.

It is worth highlighting how the interaction between the cause of default and the addressed HI factor has a different impact on the bankruptcy outcome than that of the two distinct variables. Considering the direct effect of *Ebit/Interest Expenses*, this is positive and significant for continuation through acquisition: the higher the debt sustainability and the higher the chances for the acquisition outcome. However, it turns out negative once interacted with *Production* (not significant alone), decreasing chances for continuation through reorganization. Consistently with our conceptual framework, this result indicates that the same HI factor may differently affect the debt renegotiation process once considered in relation with the causes of firm's default, showing the importance of addressing SI alongside HI to grasp the effective chances to obtain the creditors' support to business' going concern.

Profitability

Model 2 and Model 3 (*Table 6*) show that the direct effect of firm's profitability (*Ebitda/Tot. Assets*) is positive and significant across baseline models for continuation through reorganization, as expected. Model 6 and Model 7 (*Table 7*) report empirical evidence for *H3A* and *H3B*, respectively. *H3A* posits a negative effect of the interaction between firm's profitability and *Production* on business' continuation chances, *H3B* poses a negative effect of the interaction between firm's profitability and *External environment*. We find strong support for both hypotheses for continuation through reorganization. Indeed, Model 6 and Model 7 indicate that the direct effect of *Ebitda/Tot. Assets* is positive and significant at 1% level for continuation through reorganization, whereas the interaction terms with *Production* (*H3A*) and *External environment* (*H3B*) are negative and significant, at 1%. The former result suggests that production issues hamper the effect of firm's profitability, with a negative impact on business' reorganization chances. In fact, creditors may perceive such issues as difficult to be solved in the short-term. This finding is also in line with above-mentioned results from Ponikvar et al. (2018).

Results are similar for *H3B*. The effect of business' profitability on chances for firm's continuation through reorganization is thwarted when this is combined with a cause of default related to the external environment. Overcoming such a cause may require waiting the necessary time for the industry to upturn, inducing creditors to dislike the reorganization way. This is in accordance also with findings of Collett et al. (2014) reporting the external environment as a major cause for unsuccessful turnarounds and of Denis and Rodgers (2007) documenting the ostracizing role of a sector's downturn for business' restructuring chances.

Intangible assets

In accordance with the above-mentioned findings of Gilson et al. (1990), direct effects for *Intangible assets* are positive and highly significant in all baseline models (see *Table 6*). Model 8 and Model 9 report results for *H4A* and *H4B*, respectively, where the first posits a positive effect of the interaction between the amount of firm's intangible assets and *External environment*, and the second poses a positive effect of the interaction between the amount of firm's intangible assets and *Strategy* (on chances for business' continuation). Results support both hypotheses. In Model 8 the interaction term with *External environment* is positive and significant for continuation through reorganization. Under *H4A* scenario, uncertainty on assets' recovery value increases. This induces creditors to commit in business' turnaround expecting higher future cashflows from business' continuation rather than accepting extremely low recovery rates from piecemeal liquidation of intangible assets. This confirms findings of Gilson et al. (1990) documenting high uncertainty in terms of assets' value as a driver for creditors' support to insolvent firm's reorganization.

Model 9 reports results for the interaction with *Strategy*. The interaction term is positive and significant for continuation through reorganization. Creditors may perceive that firm-specific assets as intangibles have a meaningful value when placed in the context of the business' operations rather than sold piecemeal, and the fact that default relates to strategic mistakes that may be overcome increases their preference for the reorganization option. This is consistent with the arguments of Barker and Duhaime (1997) and of Sudarsanam and Lai (2001), that underline the importance of a correction in distressed firm's strategies to increase likelihood to successfully recover.

Industry trend

In accordance with prior literature, in baseline Model 3 (*Table 6*) the direct effect of *Industry performance* is positive and significant for continuation through acquisition (the better the industry trend and the higher firm's chances to be acquired). We show that this relationship is inverted in presence of a cause of default related to the external environment, as postulated by *H5*. Model 10 in *Table 7* reports that the direct effect of *Industry performance* is positive and significant (at 1% level) for both the continuation outcomes; reversely, the interaction term with *External environment* is negative and significant (still at 1% level) for both continuation through acquisition and continuation through reorganization. These findings strongly support *H5*: a cause of default related to the external environment negatively affects the effect of the industry trend on chances for achieving creditors' support to business' continuation through bankruptcy. Results from Collett et al. (2014) and Denis and Rodgers (2007) on the ostracizing role of a harsh external environment on likelihood for successful restructuring of the insolvent business reinforce this interpretation.

Moreover, our results demonstrate that the same cause of default may have different effects on the business going concern chances, depending on the HI factor it combines to. Indeed, chances for business' continuation through bankruptcy decrease for the interaction between *External environment* and the industry trend and for the interaction between *External environment* and firm's profitability, whereas they raise for the interaction between *External environment* and the amount of intangible assets. This remarks the importance of considering SI and HI in conjunction to grasp their effect on creditors' decisions in bankruptcy and thus on chances for business' going concern.

Estimation of marginal effects

The economic relevance of our findings can be represented by the marginal effects of the interaction variables of our models. *Table 8* reports these results for the three bankruptcy outcomes. The reported marginal effects represent the change in the probability of each outcome for a unit increase of the interaction term, keeping the other covariates constant at their average value.

Results from marginal effects confirm the findings from regression analysis. In fact, the sign and the significance of all marginal effects are in line with previous results. This further supports our theoretical framework: financial and accounting figures (HI) contribute to the debt renegotiation process, as bankruptcy literature demonstrated, but the picture would be uncomplete without considering the causes of default (SI) effects. Our evidence shows that SI on the causes of firm's default completes HI to explain the creditors' voting decision.

[Insert *Table 8* here]

6.3 The court effect

Our procedures relate to different courts. Some works suggest that the judicial discretion provided to bankruptcy judges can affect the outcome of the bankruptcy process. For instance, Weiss (1990) discusses as equity holders seem to obtain a better treatment when bankruptcy litigations are administered in New York rather than in California, Massachusetts, Florida, Michigan, Illinois and Ohio; Blazy et al. (2011) study the French bankruptcy context, where judges have decisional power over the restructuring plan, thus not depending on a creditors' vote. They show that, in line with the provisions of the French bankruptcy code[27], judges tend to privilege

[27] Art. 1 of the French Insolvency Law (Law no. 85-98 of 25 January 1985) defined the priorities of the bankruptcy process, ranking first the continuation of the business, second the safeguard of employment and third the repayment of liabilities.

bankruptcy outcomes safeguarding the employment even if this may be detrimental for the debt recovery rates. Yet, the French bankruptcy context is quite different from the Italian one, in that the decision on the adoption of the plan is a court's prerogative, whereas in Italy the decision rests on a creditors' vote. Judicial discretion in Italian insolvency procedures is indeed contained, so that we do not expect any significant court effect on chances for firm's continuation through bankruptcy. Yet, considering remarks from abovementioned works, we deem anyway appropriate to develop a specific analysis that aims at capturing any potential court effect on our empirical evidence.

The multinomial logit model selected in this study does not allow to implement the standard procedures to tackle this issue, i.e. the fixed effects. A panel multinomial logit with fixed effects cannot converge with relative high numbers of observations in each panel (each court, in our case), as Pforr (2014) reports. Similarly, we could not include dummy variables capturing the identity of each court because, according to this approach, we have a small number of observations for each court.

Therefore, limited to this analysis, we reduce the multinomial logit model to an ordinary logistic regression by combining sufficiently similar outcome categories reducing the possible alternatives to 2 instead of 3. Specifically, we aggregate the reorganization and acquisition outcomes in a "Continuation" category separated by the liquidation category, our second possible outcome. Diverse bankruptcy works adopt a similar binary partition distinguishing between successful and unsuccessful debt restructuring (e.g. Blazy et al., 2014; Jostarndt and Sautner, 2010; Bergström et al., 2002).

To check for the court effect, first we run a logistic regression for each model presented in Section 6.1 without any fixed effect, then we include the court fixed effects and we test the difference in the pairwise coefficients of the two regressions. Our null hypothesis is that if this difference is not systematically different from zero, we can infer that the court effect does not occur in our analysis, as expected. The Hausman test on these differences confirms our expectation on the irrelevance of the court in our investigation.[28]

6.4 Robustness tests

We test the robustness of our findings in several ways.[29] First, we applied different winsorization procedures: replacing the 1% with 0.5% and applying differentiated winsorization

[28] We do not report the results of the test because of space limit. They are available upon request.

[29] We do not report all the robustness tables because of space limit. They are available upon request.

thresholds across variables, depending on the tails of their distributions. Our results are robust to these tests.

We also consider the effect of the 2009 economic crisis that heavily hit the construction and the real estate sectors, repeating our analyses excluding firms from these industries. Only the evidence supporting *H4A* and *H4B* is no longer significant. To explain these changes, we repeated the analyses excluding other business sectors; as well, we studied the distribution of intangible assets across industries to verify if the construction and real estate sectors report any peculiarity concerning intangibles, finding that they don't. We conclude that the loss of significance of the two hypotheses can be reasonably explained by the reduction of observations in the models following the exclusion of the sectors. Overall, *H4A* and *H4B* result thus partially supported.

Furthermore, since Italian Legislative Decree 27th June 2015, no. 83 introduces a minimum debt recovery rate of 20% that the restructuring plan must grant to unsecured creditors in case of firm's liquidation, we control for the potential influence of this legislative provision. Therefore, we repeated all the econometric analysis excluding firms for which such requirement applies (29 firms). However, our results did not change. We also performed the analysis excluding the firms that applied to the TDR (11 firms) to verify that our findings are robust to the type of procedure the firm applied to, again finding no changes in the results.

Ultimately, we verify the selection bias issue. Since we removed from the main analysis firms with incomplete/missing SI from the bankruptcy files, we verified whether firms with available SI significantly differ from those excluded. If this is the case, a selection bias may affect our analysis.

In order to test this issue, according to Briggs (2004) we implement the Heckman model (Heckman, 1979; Heckman and Robb, 1986). Indeed, Blazy et al. (2013; 2017) already used such methodology to test the robustness of their findings in a similar bankruptcy context. The Heckman model consists of a response schedule and a selection function that, as Briggs (2004) reports, shall be estimated concurrently. For our case, the selection function explains if SI on the causes of default is reported in the legal papers for the firm *i* ($SI\_Reported_i$), and the response schedule explains the firm *i*'s exit way from the bankruptcy procedure ($Bankruptcy\ outcome_i$). *Equation 2* reports the tested model:

$$\begin{cases} Bankruptcy\ outcome_i = a + b\ SI\_Reported_i + c\ X_i + \sigma\ \varepsilon_i \\ SI\_Reported_i = \alpha + \beta\ Z_i + u_i > 0 \end{cases} \quad [2]$$

Bankruptcy outcome$_i$ refers to firm i's exit way from the in-court procedure. Chiburis and Lokshin (2007) report that a two-step estimation procedure for the Heckman model can be used for the binary case. As such, similarly with what done in Section 6.3 for testing the eventual presence of a court effect, we reduce the possible bankruptcy outcomes to 2 alternatives.[30] *SI_Reported*$_i$ is a dummy variable that assumes value 1 when SI is reported in bankruptcy files for the firm i, and 0 otherwise; X_i and Z_i are two sets of explanatory variables, with X_i a subset of Z_i; ε_i and u_i are the residuals of the response schedule and of the selection function, respectively, and are assumed to be i.i.d. in i with standard normal distribution; σ is the standard deviation of errors ε_i. Concerning the explanatory variables in the response schedule and in the selection function, Breen (1996) advises that if these are identical between the two functions, the identification of the system is "weak". Briggs (2004) discusses as the choice of additional covariates to be included in the selection function should be theory driven. Consequently, we include a set of financial and accounting factors as explanatory variables for both functions: *Leverage*$_i$, *Debt sustainability*$_i$, *Profitability*$_i$, *Intangible assets*$_i$, *Industry performance*$_i$, *Size*$_i$, *Short-term debt/Tot. Debt*$_i$, *Bank debt/Tot. Debt*$_i$ (as previously defined in Section 5). Furthermore, in the selection function, we also include the firm's age (*Firm's age*, the number of years since firm's birth till bankruptcy triggering), that is our instrumental variable (Briggs, 2004). Indeed, we may expect that elder firms are able to produce a larger set of SI to creditors, attaining from their richer business' history, and this may potentially affect the availability of SI in bankruptcy papers.

As Briggs (2004) explains, if a selection bias is present then u_i and ε_i are correlated. We define their covariance as ρ, assuming any value in the [-1; 1] range and we run the likelihood-ratio test of independent equations ($\rho = 0$). Thus, if ρ does not statistically differ from 0, then u_i and ε_i are not correlated and we can reject the existence of a selection bias. For all the Heckman models that we run, the likelihood-ratio test suggests that the parameter ρ does not differ statistically from 0. As such, we can reject that a selection bias problem affects our analysis.

[30] Specifically, we processed the Heckman model running the following combinations for the variable *Bankruptcy outcome*$_i$:

- it assumes value 1 when business' continuation occurs at the end of the bankruptcy process, either through business' acquisition or reorganization, and 0 if piecemeal liquidation occurs;
- it assumes value 1 if business' acquisition occurs and 0 if piecemeal liquidation does;
- it assumes value 1 if business' reorganization occurs and 0 if piecemeal liquidation does;
- it assumes value 1 if business' reorganization occurs and 0 if business' acquisition does.

7. Concluding remarks

Financial literature identifies Hard Information (HI) and Soft Information (SI) as the two types of information through which creditors reduce information asymmetry with debtors. The first relates mainly to financial and accounting figures, the second to information gathered over time through contacts with the firm, its management and the different stakeholders. We argue that, in the bankruptcy context, the causes of firm's default are a SI assuming a major role, complementing HI (accounting and financial figures) in guiding creditors' voting decision over the debt restructuring plan, thus affecting the firm's exit route from the in-court procedure (reorganization, acquisition or liquidation). Deriving from prior literature, we thus propose a set of hypotheses.

We concentrate our analysis onto a dataset of insolvent Italian SMEs that faced the bankruptcy procedure between 2011 and 2016, resting on the manual examination of bankruptcy papers for the extraction of the causes of default that affected them.

Our results demonstrate that SI on the causes of default complements financial and accounting factors in guiding creditors' voting choice over the restructuring plan, thus affecting chances for firm's continuation at the end of the in-court procedure. Furthermore, chances for continuation through acquisition or through reorganization relate to different combinations of HI factors and causes of default. Indeed, business' reorganization appears more likely when firms detaining a larger amount of intangible assets were affected by strategical mistakes or by difficulties related to an adverse sectorial climate. In such cases, the high uncertainty on assets' recovery value induces creditors to commit in the reorganization process instead of accepting low debt recovery rates through a piecemeal liquidation. Instead, chances for an acquisition at the end of the bankruptcy process increase for high levered firms that suffered from misguided strategies. In this case, the firm may reveal a still economically viable business, attracting potential buyers and inducing creditors to support business' continuation through an acquisition, an option appearing more promising respect liquidation in terms of debt recovery rates. Diversely, issues in the production system negatively affect the impact of firm's profitability and of its debt sustainability on business' reorganization chances. Also, causes of default related to the external environment negatively affect the impact of firm's profitability on likelihood for firm's reorganization, and they negatively affect the impact of the sectorial trend on both business' reorganization and acquisition chances. The findings demonstrate that the selfsame HI factors and causes of default can differently affect business' going concern likelihood depending on how they combine. This highlights the relevance of not considering accounting and financial figures and the causes of default in isolation,

but instead of investigating how they complement to better grasp their impact on the bankruptcy outcome. These results are confirmed also by the analysis of marginal effects.

Overall, these results support Kahl's (2002) assertions in that effective creditors' decisions, that is, liquidating businesses with poor recovery prospects and supporting business' going concern in presence of potentially attractive growth opportunities, depend on the type of information at their disposal. Our findings indicate that SI on the causes of firm's default expands the information available to creditors, permitting more precise evaluations on the viability of the firm and on its recovery chances.

At the best of our knowledge, our work is the first to apply the SI-HI dichotomy to study creditors' decisions in the bankruptcy context. As such, our research contributes to the extant bankruptcy literature demonstrating how SI on the causes of firm's default constitutes an important piece of information for creditors voting the debt restructuring plan that, in addition to HI factors, conditions firm's exit path from the proceeding. In other words, this work shows that the role of HI factors in guiding the debt renegotiation process as acknowledged by the literature can differ depending on the causes of default (SI) they combine with.

Moreover, we believe that a better understanding of the ways through which SMEs can successfully face the restructuring process is crucial for strengthening the European economic fabric, in line with recent EU policies on this front (see EU Recommendation no. 135/2014 and EU Directive 2019/1023 on the reform of insolvency frameworks).

Concerning managerial implications, we are confident that our results can be highly informative for managers of insolvent firms on the circumstances under which continuation of the business is more likely, contingently with both firm's accounting and financial figures and the specific causes of default. This may increase their chances for achieving creditors' support to firm's going concern through bankruptcy. Our findings may also support bankruptcy practitioners in identifying the most indicated firm's exit path from the proceeding in relation with its accounting and financial figures and causes of default. Furthermore, our results may serve creditors as well; Blazy et al. (2013) demonstrate that creditors may expect higher debt recovery rates, on average, through the restructuring of the firm rather than its liquidation. Our results provide worthy insights to creditors on the circumstances under which going concern of the business is more probable and thus, indirectly, recovery rates likely to be higher. All this may lead to a more efficient conduct of the proceeding, easing the research for a shared settlement to the firm's insolvency, diminishing its duration and costs.

Italy proved, even in recent works, to be a valid context for the study of the bankruptcy topic (e.g. Rodano et al., 2016; Melcarne and Ramello, 2020) and, as previously discussed, our setting

shows similarities with the ones of other bankruptcy studies (e.g. Franks and Sussman, 2005; Collett et al., 2014; Brunner and Krahnen, 2008; Dewaelheyns and Van Hulle, 2008; 2009). We thus expect that our approach of addressing both HI and SI on the causes of default for explaining the bankruptcy issue can be extended to those settings showing high levels of institutional and industrial development. Yet, our work is not free from limitations, which indeed represent opportunities for further research. Our results are restricted to those institutional contexts where creditors have the decisional power over the restructuring plan. Future studies may investigate how SI on the causes of default guides the bankruptcy process in other institutional contexts where creditors have limited power, as in France, where the decisional power is reserved to the court (as Blazy et al. (2011; 2013) recall). Our investigation is restricted to the in-court context, as such future works could study how creditors' awareness of the causes of default affects the out-of-court context. Besides, our analysis induces to suggest that frequently insolvency has a circumscribed origin that, if not properly addressed, expands triggering a chain of further complications that culminate with firm's default and, finally, with bankruptcy. Further investigations may reveal how original roots of default tend to evolve, in order to identify preventive tools and thus facilitate timely recovery interventions. The hope is that our results and our comprehensive approach with the focus on both HI and SI on the causes of default for the study of the bankruptcy issue may shed an original light on the topic, stimulating the rise of new research questions.

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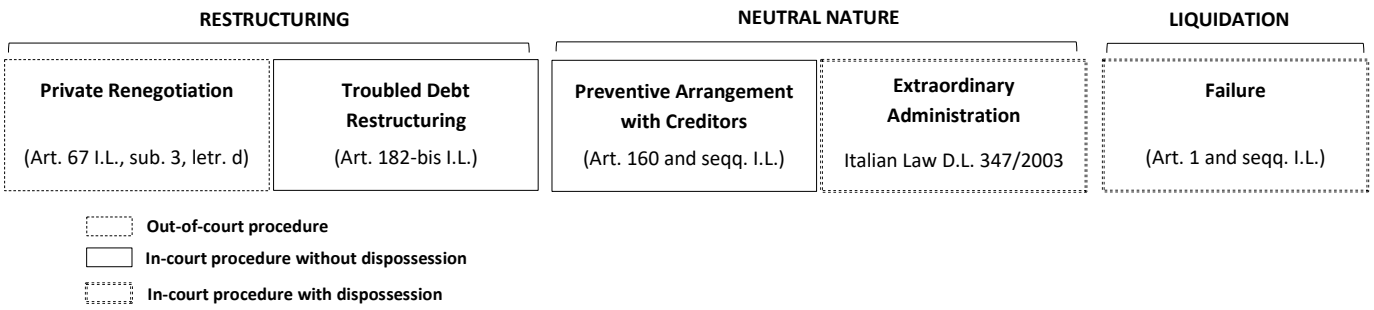

Figure 1: Structure of the Italian insolvency framework
Source: Rearrangement from Danovi et al. (2018)

Table 1: Codification of the causes of default as extracted from bankruptcy documents

This table reports the definition for the causes of default, and the items comprised within each cause, as emerging from the bankruptcy documents inherent to the analysed proceedings.

Causes of default	Items
Strategy	*Causes of default endogenous to the company emerging from its strategic operations* Failure of a relevant project/bad investment; Price reduction; Failure of a member of the group; Exit of a relevant shareholder
Finance	*Causes of default endogenous to the company emerging from its financial operations* Decreased value of financial assets (swap); Difficulties in obtaining bank credit; High indebtment; Missing of non-strategic asset to be sold for cash; Request by the bank of paying the debt; Excessive contractual interest rates; Devaluation of costumers' credits; Longer delays on accounts receivable; Shorter delays on accounts payable; Missed/high delayed payment by public administration
Production	*Causes of default endogenous to the company emerging from its productive operations* High fixed costs; High personnel costs; Increasing costs of raw material; High taxes; Unavailability of relevant material/assets
Management	*Causes of default endogenous to the company deriving from poor management skills* Change of a key figure; Weak internal informational system; Disagreements among directors/managers; Excessive inventories; Increasing management costs
External environment	*Causes of default exogenous to the company emerging from the surrounding environment* Sectorial crisis; Climate issue; Global economic crisis; Change public policies; Currency rate
Outlets	*Causes of default exogenous to the company deriving from its target market* No competitive prices; Disappearance of costumers; Competition from international brands; Decreasing sales to a large client; Crisis of a relevant client/client portfolio; Competition from low labour costs countries; Major change in costumers' tastes
Accident	*Causes of default exogenous to the company deriving from an accidental event* Health problems of key personnel; Disaster; Dispute with public authorities/fiscal inquiry

Table 2: Definition of variables adopted in the econometrical analysis

This table reports the definition for the variables implemented in the econometrical analysis.

Variable	Definition
Bankruptcy outcome	Firm's exit path from the in-court procedure distinguishing between reorganization (B.o. = 2), acquisition (B.o.=1) and liquidation (B.o.=0)
Cause of default	Natural logarithm of the number of items reported within the cause adding 1 (to avoid Ln(0) when no items are reported within the cause)
Size	Revenues of the firm
Profitability	Ebitda over total assets
Intangible assets	Natural logarithm of the amount of intangible assets
Leverage	Book value of total liabilities over book value of total assets
Fraction of short-term debt	Short-term debt over total debt
Fraction of bank-debt	Total bank debt over total debt
Debt sustainability	Coverage ratio = Ebit over interest expenses (in line with Brown et al., 1994)
Industry performance	Growth rate of industry's turnover between one to four years prior to firm's admission to the proceeding

Table 3: Characteristics of the firms in our dataset

This table reports descriptive statistics on the firms composing our dataset. Data refer to the year prior the entrance to the bankruptcy procedure. *Reorganization* refers to the bankruptcy outcome where the business is restructured at the end of the in-court procedure, and the incumbent ownership remains in control of the firm; *Acquisition* refers to the bankruptcy outcome where the viable firm or one/more operative units are sold to third subjects at the end of the in-court procedure and proceeds are used to repay creditors; *Liquidation* refers to the bankruptcy outcome where the firm's assets are sold piecemeal at the end of the in-court procedure and proceeds are used to repay creditors; *No. Employees* refers to the number of firm's employees the year before bankruptcy triggering; *Age* refers to the number of firm's years from its foundation till bankruptcy triggering; *Size* refers to the firm's dimensional categories based on the EU classification (EC Recommendation 2003/361/EC), distinguishing between micro, small, and medium enterprise; *Ltd. Company* refers to the percentage of firms in our dataset registered as Ltd. Company; *Sector* refers to the percentage of firms in our dataset operating in the Commerce, Industry, Services or Other business sectors.

	Reorganization			Acquisition			Liquidation		
Variable	#obs.	Mean	Median	#obs.	Mean	Median	#obs.	Mean	Median
No. Employees$_{t-1}$	33	21.8	11	89	21.8	11.5	84	21.7	11.5
Age (Years)	33	22.5	20	89	22.3	19.8	86	22.3	19.7
Size									
Micro	33	33.3%	-	89	25.8%	-	86	51.2%	-
Small	33	48.5%	-	89	53.9%	-	86	40.7%	-
Medium	33	18.2%	-	89	20.2%	-	86	8.1%	-
Ltd. Company	33	81.8%	-	89	92.1%	-	86	90.7%	-
Sector									
Commerce	33	24.2%	-	89	34.8%	-	86	25.6%	-
Industry	33	51.5%	-	89	44.9%	-	86	45.3%	-
Services	33	24.2%	-	89	15.7%	-	86	22.1%	-
Other sectors	33	0.0%	-	89	4.5%	-	86	7.0%	-

Table 4: Descriptive statistics for HI factors

This table reports descriptive statistics on the firms composing our dataset for the selected HI factors (financial and accounting factors). *t* refers to the year of firm's bankruptcy triggering. *Reorganization* refers to the bankruptcy outcome where the business is restructured at the end of the in-court procedure, and the incumbent ownership remains in control of the firm; *Acquisition* refers to the bankruptcy outcome where the viable firm or one/more operative units are sold to third subjects at the end of the in-court procedure and proceeds are used to repay creditors; *Liquidation* refers to the bankruptcy outcome where the firm's assets are sold piecemeal at the end of the in-court procedure and proceeds are used to repay creditors; *Revenues* refers to the revenues of the firm (in K €), from income statement; *Ebitda/Tot. Assets* is the ratio (%) between firm's Ebitda, from income statement, and firm's Total Assets, from balance sheet; *Intangible assets* is the amount of firm's Intangible Assets (in K €), from balance sheet; *Tot. Debt/Tot. Assets* is the ratio between firm's Total Debt and firm's Total Assets, from balance sheet; *Short-term debt/Tot. Debt* is the ratio (%) between firm's Short-term Debt and firm's Total Debt, from balance sheet; *Bank debt/Tot. Debt* is the ratio (%) between firm's Bank Debt and firm's Total Debt, from balance sheet; *Ebit/Interest Expenses* is the ratio between firm's Ebit and firm's Expenses for Interests, from income statement; *Industry performance* is the growth rate of industry's turnover, based on aggregated data from income statements, between one to four years prior to firm's bankruptcy triggering.

	Reorganization				Acquisition				Liquidation			
Variable	#obs.	Mean	S.D.	Median	#obs.	Mean	S.D.	Median	#obs.	Mean	S.D.	Median
Revenues$_{t-1}$ (K €)	33	5,834	7,963	2,625	89	5,826	7,925	2,684	85	5,742	7,897	2,573
Ebitda/Tot. Assets$_{t-1}$ (%)	33	-24.6%	44.1%	-11.1%	89	-27.1%	48.6%	-12.0%	85	-28.0%	50.7%	-12.4%
Intangible assets$_{t-1}$ (K €)	33	139.2	307.4	9.1	87	137.1	305.6	8.4	81	135.8	304.3	7.8
Tot. Debt/ Tot. Assets$_{t-1}$	33	1.3	0.6	1.1	89	1.5	1.2	1.1	85	1.5	1.4	1.1
Short-term debt/ Tot. Debt$_{t-1}$ (%)	33	77.1%	26.9%	83.8%	89	77.8%	26.6%	84.1%	85	77.9%	26.6%	84.2%
Bank debt/Tot. Debt$_{t-1}$ (%)	33	52.3%	26.0%	54.6%	89	52.0%	26.2%	54.0%	85	51.9%	26.3%	54.4%
Ebit/Interest Expenses$_{t-1}$	33	-14.2	35.1	-5.5	89	-13.9	33.5	-5.5	84	-15.0	36.2	-5.6
Industry performance$_{t-1}$ (%)	32	-4.1%	11.0%	-4.4%	88	-3.9%	10.9%	-3.9%	83	-3.9%	10.8%	-3.9%

Table 5: Causes of firms' default by bankruptcy outcome and size as extracted from bankruptcy documents

This table reports the causes of default for the firms composing our dataset by bankruptcy outcome and firm's size. Sums exceed 100% as a company may suffer from more causes of default. *Reorganization* refers to the bankruptcy outcome where the business is restructured at the end of the in-court procedure, and the incumbent ownership remains in control of the firm; *Acquisition* refers to the bankruptcy outcome where the viable firm or one/more operative units are sold to third subjects at the end of the in-court procedure and proceeds are used to repay creditors; *Liquidation* refers to the bankruptcy outcome where the firm's assets are sold piecemeal at the end of the in-court procedure and proceeds are used to repay creditors; *Micro*, *Small* and *Medium* refers to the firm's dimensional categories based on the EU classification (EC Recommendation 2003/361/EC); *Strategy* refers to the percentage of firms in the dataset mentioning at least one cause of default endogenous to the company emerging from its strategic operations; *Finance* refers to the percentage of firms in the dataset mentioning at least one cause of default endogenous to the company emerging from its financial operations; *Production* refers to the percentage of firms in the dataset mentioning at least one cause of default endogenous to the company emerging from its productive operations; *Management* refers to the percentage of firms in the dataset mentioning at least one cause of default endogenous to the company deriving from poor management skills; *External environment* refers to the percentage of firms in the dataset mentioning at least one cause of default exogenous to the company emerging from the surrounding environment; *Outlets* refers to the percentage of firms in the dataset mentioning at least one cause of default exogenous to the company deriving from its target market; *Accident* refers to the percentage of firms in the dataset mentioning at least one cause of default exogenous to the company deriving from an accidental event.

Bankruptcy outcome			Size		
Reorganization	Acquisition	Liquidation	Micro	Small	Medium
External environment	External environment	External environment	External environment	External environment	External environment
78.8%	84.3%	84.9%	82.1%	82.8%	90.3%
Finance	Finance	Finance	Finance	Finance	Finance
78.8%	71.9%	72.1%	71.8%	74.7%	71.0%
Outlets	Outlets	Strategy	Strategy	Outlets	Production
45.5%	42.7%	39.5%	38.5%	47.5%	45.2%
Strategy	Strategy	Outlets	Outlets	Strategy	Outlets
33.3%	39.3%	33.7%	26.9%	43.4%	45.2%
Production	Production	Production	Production	Production	Strategy
21.2%	34.8%	20.9%	10.3%	34.3%	22.6%
Accident	Management	Management	Management	Management	Management
3.0%	13.5%	8.1%	10.3%	10.1%	3.2%
Management	Accident	Accident	Accident	Accident	Accident
0.0%	3.4%	4.7%	7.7%	2.0%	0.0%
N = 33	N = 89	N = 86	N = 31	N = 99	N = 78

Table 6: Determinants of the creditors' voting decision among bankruptcy outcomes – baseline models

This table reports the results from the multinomial logistic regression for baseline models, i.e. with no interaction terms. *t* refers to the year of firm's bankruptcy triggering The dependent variable is *Bankruptcy outcome* being the firm's exit way from the in-court procedure as emerging from creditors' vote, assuming value 0 if piecemeal liquidation occurs (*Liquidation*, base outcome of the regression), 1 if the firm is acquired (*Acquisition*) and 2 if the firm is reorganized with no changes in the ownership (*Reorganization*). *Strategy* refers to a cause of default endogenous to the company emerging from its strategic operations (natural logarithm of the number of items reported within *Strategy* adding 1); *Production* refers to a cause of default endogenous to the company emerging from its productive operations (natural logarithm of the number of items reported within *Production* adding 1); *External environment* refers to a cause of default exogenous to the company emerging from the surrounding environment (natural logarithm of the number of items reported within *External environment* adding 1); *Revenues* refers to the revenues of the firm (in K €), from income statement; *Ebitda/Tot. Assets* is the ratio (%) between firm's Ebitda, from income statement, and firm's Total Assets, from balance sheet; *Intangible assets* is the natural logarithm of firm's Intangible Assets, from balance sheet; *Tot. Debt/Tot. Assets* is the ratio between firm's Total Debt and firm's Total Assets, from balance sheet; *Short-term debt/Tot. Debt* is the ratio (%) between firm's Short-term Debt and firm's Total Debt, from balance sheet; *Bank debt/Tot. Debt* is the ratio (%) between firm's Bank Debt and firm's Total Debt, from balance sheet; *Ebit/Interest Expenses* is the ratio between firm's Ebit and firm's Expenses for Interests, from income statement; *Industry performance* is the growth rate of industry's turnover, based on aggregated data from income statements, between one to four years prior to firm's bankruptcy triggering.

No. obs.: 195 — Base outcome: liquidation (76 obs.)

	Model 1		Model 2		Model 3	
Variable	Acquisition	Reorganization	Acquisition	Reorganization	Acquisition	Reorganization
Strategy	0.5666	0.0221				
	(0.228)	(0.971)				
Production			0.5145	0.0823		
			(0.232)	(0.898)		
External environment					-0.3565	-1.4136*
					(0.582)	(0.088)
$Revenues_{t-1}$	0.0678***	0.0418	0.0663***	0.0418	0.0666**	0.0459
	(0.010)	(0.189)	(0.010)	(0.196)	(0.013)	(0.174)
$Ebitda/Tot.\ Assets_{t-1}$	0.3129	2.1473*	0.2610	2.0679*	0.2720	2.3032*
	(0.400)	(0.069)	(0.500)	(0.076)	(0.472)	(0.076)
$Intangible\ Assets_{t-1}$	0.1243***	0.1235***	0.1219***	0.1224**	0.1261***	0.1225**
	(0.001)	(0.010)	(0.001)	(0.011)	(0.000)	(0.011)
$Ebit/Interest\ Expenses_{t-1}$	0.0139**	-0.0104	0.0137**	-0.0102	0.0142**	-0.0107
	(0.048)	(0.184)	(0.050)	(0.190)	(0.042)	(0.177)
$Bank\ Debt/Tot.\ Debt_{t-1}$	0.9334	0.6915	0.8982	0.6180	0.9339	0.5609
	(0.263)	(0.627)	(0.291)	(0.668)	(0.272)	(0.696)
$Tot.\ Debt/Tot.\ Assets_{t-1}$	0.2535*	-0.8455	0.2617*	-0.8659	0.2431*	-0.9353*
	(0.058)	(0.117)	(0.065)	(0.118)	(0.079)	(0.094)
Short-term $Debt/Tot.\ Debt_{t-1}$	2.3086**	-0.5046	2.1929**	-0.5595	2.2289**	-0.6430
	(0.022)	(0.624)	(0.028)	(0.591)	(0.028)	(0.556)
$Industry\ performance_{t-1}$	3.6734**	2.5752	3.7611**	2.5155	3.9082**	2.2633
	(0.031)	(0.239)	(0.026)	(0.247)	(0.024)	(0.287)
Intercept	-3.5703***	-0.7027	-3.4236***	-0.6155	-3.0988**	0.4439
	(0.003)	(0.637)	(0.005)	(0.685)	(0.013)	(0.787)
N	87	32	87	32	87	32
Wald $\chi 2$	51.97		53.25		57.95	
p-value	0.0000***		0.0000***		0.0000***	

p-values in parentheses. *Statistical significance at the 10% level. **Statistical significance at the 5% level. ***Statistical significance at the 1% level.

Table 7: Determinants of the creditors' voting decision among bankruptcy outcomes – complete models

This table reports the results from the multinomial logistic regression for complete models, i.e. with interaction terms. *t* refers to the year of firm's bankruptcy triggering The dependent variable is *Bankruptcy outcome* being the firm's exit way from the in-court procedure as emerging from creditors' vote, assuming value 0 if piecemeal liquidation occurs (*Liquidation*, base outcome of the regression), 1 if the firm is acquired (*Acquisition*) and 2 if the firm is reorganized with no changes in the ownership (*Reorganization*). *Strategy* refers to a cause of default endogenous to the company emerging from its strategic operations (natural logarithm of the number of items reported within *Strategy* adding 1); *Production* refers to a cause of default endogenous to the company emerging from its productive operations (natural logarithm of the number of items reported within *Production* adding 1); *External environment* refers to a cause of default exogenous to the company emerging from the surrounding environment (natural logarithm of the number of items reported within *External environment* adding 1); *Revenues* refers to the revenues of the firm (in K €), from income statement; *Ebitda/Tot. Assets* is the ratio (%) between firm's Ebitda, from income statement, and firm's Total Assets, from balance sheet; *Intangible assets* is the natural logarithm of firm's Intangible Assets, from balance sheet; *Tot. Debt/Tot. Assets* is the ratio between firm's Total Debt and firm's Total Assets, from balance sheet; *Short-term debt/Tot. Debt* is the ratio (%) between firm's Short-term Debt and firm's Total Debt, from balance sheet; *Bank debt/Tot. Debt* is the ratio (%) between firm's Bank Debt and firm's Total Debt, from balance sheet; *Ebit/Interest Expenses* is the ratio between firm's Ebit and firm's Expenses for Interests, from income statement; *Industry performance* is the growth rate of industry's turnover, based on aggregated data from income statements, between one to four years prior to firm's bankruptcy triggering.

No. obs.: 195 — Base outcome: liquidation (76 obs.)

	Model 4		Model 5		Model 6		Model 7		Model 8		Model 9		Model 10	
	Acquisition	Reorganization	Acquisition	Reorganization	Acquisition	Reorganization	Acquisition	Reorganization	Acquisition	Reorganization	Acquisition	Reorganization	Acquisition	Reorganization
H1														
Tot. Debt/Tot. Assets$_{t-1}$ × Strategy	0.9235**	1.6077												
	(0.041)	(0.242)												
H2														
Ebit/Interest Expenses$_{t-1}$ × Production			0.0205	-0.0696**										
			(0.539)	(0.032)										
H3A														
Ebitda/Tot.Assets$_{t-1}$ × Production					0.2725	-6.0120***								
					(0.756)	(0.005)								
H3B														
Ebitda/Tot.Assets$_{t-1}$ × External environment							0.2930	-4.4793**						
							(0.780)	(0.034)						
H4A														
Intangible Assets$_{t-1}$ × External environment									0.0543	0.2865*				
									(0.677)	(0.072)				
H4B														
Intangible Assets$_{t-1}$ × Strategy											0.0945	0.3860**		
											(0.363)	(0.011)		
H5														
Industryperformance$_{t-1}$ × External environment													-23.2291***	-25.0976***
													(0.004)	(0.007)

SI Factors														
Strategy	-0.7495	-1.8319									0.0598	-3.3696**		
	(0.349)	(0.253)									(0.942)	(0.019)		
Production			0.6556	-0.5358	0.5830	-0.7514								
			(0.198)	(0.497)	(0.249)	(0.280)								
External environment							-0.3187	-1.8802*	-0.6226	-3.9555***			-1.5985*	-2.7151**
							(0.681)	(0.056)	(0.606)	(0.008)			(0.097)	(0.023)
HI factors														
Revenues$_{t-1}$	0.0654**	0.0382	0.0665***	0.0466	0.0700***	0.0418	0.0696**	0.0579*	0.0670**	0.0449	0.0656***	0.0398	0.0684**	0.0483
	(0.012)	(0.243)	(0.010)	(0.159)	(0.009)	(0.226)	(0.012)	(0.078)	(0.012)	(0.204)	(0.010)	(0.218)	(0.011)	(0.145)
Ebitda/Tot.Assets$_{t-1}$	0.4424	2.3535*	0.2271	2.6357**	0.1812	4.4124***	0.0618	4.7732**	0.2944	2.6146**	0.3110	2.0481*	0.2793	2.2523*
	(0.285)	(0.071)	(0.559)	(0.030)	(0.672)	(0.007)	(0.942)	(0.014)	(0.436)	(0.041)	(0.411)	(0.078)	(0.457)	(0.065)
Intangible Assets$_{t-1}$	0.1281***	0.1261***	0.1211***	0.1215**	0.1244***	0.1274**	0.1279***	0.1199**	0.0877	-0.0360	0.1048**	0.0628	0.1366***	0.1441***
	(0.001)	(0.010)	(0.001)	(0.013)	(0.001)	(0.012)	(0.000)	(0.013)	(0.324)	(0.726)	(0.022)	(0.224)	(0.000)	(0.005)
Ebit/InterestExpenses$_{t-1}$	0.0128*	-0.0119	0.0122**	-0.0102	0.0142**	-0.0132*	0.0151**	-0.0116	0.0137**	-0.0126	0.0138**	-0.0119*	0.0130*	-0.0118
	(0.072)	(0.154)	(0.049)	(0.180)	(0.048)	(0.095)	(0.039)	(0.161)	(0.046)	(0.146)	(0.049)	(0.092)	(0.054)	(0.149)
Bank Debt/Tot. Debt$_{t-1}$	1.0154	0.6346	0.8839	0.4296	0.9558	0.2228	0.9707	0.5380	1.0053	0.8778	1.0103	0.7394	0.5965	0.2565
	(0.227)	(0.667)	(0.299)	(0.755)	(0.271)	(0.873)	(0.258)	(0.708)	(0.239)	(0.531)	(0.234)	(0.603)	(0.473)	(0.859)
Tot. Debt/Tot. Assets$_{t-1}$	0.1566	-1.2287**	0.2532*	-0.7921	0.2600*	-0.8820*	0.2422*	-0.9838*	0.2405*	-0.9049*	0.2526*	-0.9069*	0.2433*	-0.8965*
	(0.300)	(0.033)	(0.074)	(0.130)	(0.074)	(0.092)	(0.087)	(0.083)	(0.080)	(0.090)	(0.071)	(0.086)	(0.072)	(0.097)
Short-term Debt/Tot. Debt$_{t-1}$	2.4587**	-0.3830	2.1608**	-0.7263	2.1878**	-0.7056	2.2207**	-0.7689	2.2656**	-0.5702	2.3285**	-0.6028	1.9911**	-0.8564
	(0.019)	(0.723)	(0.028)	(0.495)	(0.030)	(0.508)	(0.029)	(0.492)	(0.024)	(0.600)	(0.020)	(0.550)	(0.048)	(0.414)
Industry performance$_{t-1}$	3.6996**	2.3610	3.6805**	2.8086	3.6323**	2.5975	3.9582**	2.1966	3.8513**	1.9302	3.6708**	2.3210	20.3934***	19.1533***
	(0.032)	(0.293)	(0.028)	(0.202)	(0.030)	(0.240)	(0.024)	(0.306)	(0.025)	(0.376)	(0.033)	(0.287)	(0.001)	(0.006)
Intercept	-3.5714***	-0.3424	-3.3991***	-0.4129	-3.5091***	-0.1445	-3.1569**	0.7839	-2.9696**	1.5653	-3.5069***	-0.1483	-1.9068	1.4500
	(0.003)	(0.825)	(0.005)	(0.778)	(0.005)	(0.921)	(0.013)	(0.651)	(0.035)	(0.348)	(0.005)	(0.919)	(0.166)	(0.419)
N	87	32	87	32	87	32	87	32	87	32	87	32	87	32
Wald χ^2	58.86		56.55		56.26		57.68		60.70		57.95		58.84	
p-value	0.0000***		0.0000***		0.0000***		0.0000***		0.0000***		0.0000***		0.0000***	

p-values in parentheses. *Statistical significance at the 10% level. **Statistical significance at the 5% level. ***Statistical significance at the 1% level.

Table 8: Marginal effects of interaction terms

This table reports the marginal effects of the interaction terms included in the complete models. In parentheses the model the interaction term refers to. *t* refers to the year of firm's bankruptcy triggering. The dependent variable is *Bankruptcy outcome* being the firm's exit way from the in-court procedure as emerging from creditors' vote, assuming value 0 if piecemeal liquidation occurs (*Liquidation*), 1 if the firm is acquired (*Acquisition*) and 2 if the firm is reorganized with no changes in the ownership (*Reorganization*). *Strategy* refers to a cause of default endogenous to the company emerging from its strategic operations (natural logarithm of the number of items reported within *Strategy* adding 1); *Production* refers to a cause of default endogenous to the company emerging from its productive operations (natural logarithm of the number of items reported within *Production* adding 1); *External environment* refers to a cause of default exogenous to the company emerging from the surrounding environment (natural logarithm of the number of items reported within *External environment* adding 1); *Ebitda/Tot. Assets* is the ratio (%) between firm's Ebitda, from income statement, and firm's Total Assets, from balance sheet; *Intangible assets* is the natural logarithm of firm's Intangible Assets, from balance sheet; *Tot. Debt/Tot. Assets* is the ratio between firm's Total Debt and firm's Total Assets, from balance sheet; *Ebit/Interest Expenses* is the ratio between firm's Ebit and firm's Expenses for Interests, from income statement; *Industry performance* is the growth rate of industry's turnover, based on aggregated data from income statements, between one to four years prior to firm's bankruptcy triggering.

Note: The impact of the interaction terms with regards to sign is either the same for the same continuation outcome – reorganization or acquisition – or it has a reversed sign for the liquidation outcome (which is the base outcome in complete models), so maintaining the same economic meaning respect complete models.

	Acquisition (N = 87)	Reorganization (N = 32)	Liquidation (N = 76)
Variable	dy/dx	dy/dx	dy/dx
Tot. Debt/Tot. Assets$_{t-1}$ × Strategy *(Model 4)*	0.153 (0.240)	0.103 (0.433)	-0.256** (0.021)
Ebit/Interest Expenses$_{t-1}$ × Production *(Model 5)*	0.008 (0.304)	-0.007** (0.017)	-0.001 (0.875)
Ebitda/Tot. Assets$_{t-1}$ × Production *(Model 6)*	0.299 (0.173)	-0.454*** (0.001)	0.155 (0.459)
Ebitda/Tot. Assets$_{t-1}$ × External environment *(Model 7)*	0.286 (0.236)	-0.421** (0.020)	0.135 (0.606)
Intangible Assets$_{t-1}$ (Ln) × External environment *(Model 8)*	0.002 (0.959)	0.021* (0.060)	-0.022 (0.467)
Intangible Assets$_{t-1}$ (Ln) × Strategy *(Model 9)*	0.006 (0.787)	0.028** (0.030)	-0.035 (0.149)
Industry performance$_{t-1}$ × External environment *(Model 10)*	-4.473*** (0.006)	-1.132* (0.087)	5.605*** (0.002)

p-values in parentheses. *Statistical significance at the 10% level. **Statistical significance at the 5% level. ***Statistical significance at the 1% level.

Chapter II

Post-default recoveries: who matters the most, the firm or the judges?

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Abstract

This paper investigates the linkage between the profile of lay judges and the financial performance of the bankruptcy procedures they supervised in terms of debt recovery rates. We focus on a dataset of 223 French bankruptcy proceedings and on the individual profiles of the 61 lay judges that administered them in the period 2006-2012. We manually analysed bankruptcy documents and collected information on the judges' profiles. Through regression analysis we thus provide evidence that several judges' individual factors affect the debt recovery rate. Recovery rates significantly increase when lay judges possess specific financial-accounting skills and general management skills, when they have accumulated professional experiences in for-profit organizations and/or in firms that went bankrupt eventually and when they are more interactive in terms of digital professional networking; vice versa, recovery rates significantly decrease when lay judges possess specific legal skills, when they have accumulated professional experiences in non-profit organizations as well as when they detain more mandates in organizations belonging to the business community. Results also suggest that gender diversity among the judges in the panel may be beneficial for increasing the quality of proceedings' administration via more equilibrated decisions. This study contributes to the law and finance literature highlighting how the lay judges' individual characteristics may constitute an additional source of uncertainty for the firm and its creditors, and providing elements to appraise such human factor affecting the bankruptcy process. This work suggests that in the study of bankruptcy systems not only it should be considered how bankruptcy codes are designed, but also how they are enforced. The findings can be extended to other consular as well as mixed consular systems and to all those contexts where the judges are granted with ample judicial discretion.

Keywords: Bankruptcy, Recovery rates, Debt renegotiation, Lay judges
JEL Classification: G33, K22

1. Introduction

The bankruptcy literature recognizes the ability of insolvency procedures to generate financial outcomes to the creditors as one of the intrinsic functions of bankruptcy (Bebchuk, 1988; White, 1989; Aghion et al., 1992; Hart, 2006). Several authors thus focus on the creditors' recovery rate to measure the financial performance of the bankruptcy process (Armour et al., 2008; Couwenberg and de Jong, 2008; Davydenko and Franks, 2008), that is, its capacity to produce a financial stake to the creditors through the recovery of their funds from the bankrupted firm. Following Blazy et al. (2013), the creditors' recovery rates (hereinafter, "recovery rates" or "debt recovery rates") are the recovered amounts out of the due claims for all the classes of claimants. Diverse works refer to recovery rates as a (imperfect) proxy of the *ex-post* efficiency of a bankruptcy procedure, that is, the ability of the bankruptcy law to maximize the *ex-post* market value of the firm (Aghion et al., 1992): the outcome of a bankruptcy process, whether it consists in the reorganization, sale or piecemeal liquidation of the insolvent firm, should be the one that maximizes the total value available to be divided among the different claimholders.[31] Indeed, *ceteris paribus*, the higher such total value, the higher creditors' recovery rates. Still, recovery rates are an imperfect proxy of *ex-post* efficiency because, as Blazy et al. (2017) discuss, to measure the *ex-post* efficiency of a bankruptcy procedure one should be able to compare the value of the debtor's assets under alternative bankruptcy outcomes (e.g. firm's sale, reorganization or liquidation), values that are mostly unknown. Whereas it is out of the scope of this work to discuss if recovery rates are or not a fair enough proxy of the *ex-post* efficiency of a bankruptcy procedure, they surely permit to measure the performance of a bankruptcy process in terms of its capability to produce a financial outcome to the firm's claimants.

Numerous bankruptcy works empirically assess how the provisions of a legal environment impact on recovery rates. Davydenko and Franks (2008), in a study over French, English and German bankruptcy codes, find that the higher protection that English and German codes reserve to creditors' rights coincides with higher bank debt recovery rates. Blazy et al. (2013), in a study of six different procedures prevailing under English and French bankruptcy codes, show that procedures aimed at firm's reorganization provide on average higher recovery rates respect liquidation procedures. They demonstrate as legal provisions easing the accessibility to the procedure, ensuring the protection of debtor's assets and of the claims, and providing sanctions against faulty management are associated with higher recovery rates. Nevertheless, Blazy et al. (2013) rightly underline as the provisions of a bankruptcy code are not the sole elements of a bankruptcy system

[31] Hart (2006) recognizes *ex-post* efficiency as the "Goal 1" of the bankruptcy procedure.

that may impact on recovery rates, as a bankruptcy system is inserted in the wider picture of a country's legal framework, that comprises also the way the judges enforce the law. On a similar line, Melcarne and Ramello (2020) point out how bankruptcy institutions not only need to be properly designed, but also properly enforced by the judiciary system.

Bankruptcy literature indeed recognizes the court as an actor above the parties whose powers, conferred by the law, permit the ordered administration of the bankruptcy procedure, attenuating coordination problems among the different claimants (as the works of Gilson et al. (1990), Weiss (1990), Chatterjee et al. (1996), Jostarndt and Sautner (2010) suggest).

Given the pivotal role the court has on bankruptcy, several authors have studied how judges, via their decisions, can affect the outcome of the bankruptcy process. Bernstein et al. (2019) investigate how judges' decisions to convert Chapter 11 bankruptcy cases into Chapter 7 liquidations affect the allocation and subsequent utilization of firms' assets in bankruptcy. They discuss as while there are uniform criteria for Chapter 11 conversion to Chapter 7, significant variation exists in the way bankruptcy judges interpret such criteria. Indeed, several works highlight the consistent judicial discretion that Chapter 11 provides to bankruptcy judges and analyse its implications, with mixed results. Weiss and Wruck (1998) show that in the Eastern Airlines' Chapter 11 proceeding, assets' value dropped by 50%, and they argue that the actions of an overprotective court that insulated the company from the creditors contributed to such value deterioration. The authors discuss as the Chapter 11 outcome strongly depended on the judges' deliberative actions, and they assert that bankruptcy procedures should protect more the debtor's assets from misguided judicial decisions. Weiss (1990) suggests the existence of a local effect, demonstrating that equity holders are best treated by courts located in New York than in California, Florida, Illinois, Massachusetts, Michigan, and Ohio.

Others argue that margins for judicial discretion allow the bankruptcy process to adapt to a plurality of different circumstances (to reach the goals of the bankruptcy code). Whitford (1994) discusses how the malleability of Chapter 11 allows it to be a superior procedure compared to other alternatives. Similar reflections are shared by Warren (1992). Evans (2003) demonstrates that judges' discretionary actions not always affect Chapter 11 outcomes. Indeed, she finds that only when the judges' decisions are more creditor-friendly (and not debtor-friendly) the priority order of repayment is less often respected and the chances to reorganize decrease.

On the European front, Blazy et al. (2011) discuss how the French bankruptcy code grants to judges ample decisional power over litigations, and they demonstrate that judges use such decisional power to privilege bankruptcy outcomes safeguarding the employment even if this may be detrimental for the creditors' recovery rates; they relate this finding to the goals of the French

bankruptcy code that ranks first the safeguard of the business, second the protection of employment and third the discharge of liabilities. Rodano et al. (2016), in a study of the effects of the Italian 2005-2006 reform on bankruptcy law, argue that more efficient bankruptcy courts facilitate the renegotiation of financial contracts by increasing the firm's verifiable value, and their results confirm such prediction.[32] Melcarne and Ramello (2020), within an Italian setting, find that the efficiency of bankruptcy courts, in terms of quicker judicial resolutions of bankruptcy proceedings, is beneficial for entrepreneurial dynamism. The important contribution of these studies is to relate the performances of the bankruptcy process to the role of the court and to the actions undertaken by the judges. However, these works do not explain what guides judges' judicial discretion and deliberation, and how this in turn affects the financial performance of the bankruptcy process in terms of recovery rates.

Some authors in the field of law argue that the deliberation of bankruptcy judges is driven by distinct biases that affect the cognitive process through which they interpret a case. Rachlinski et al. (2006) find that anchoring and framing effects are present in the deliberative process of bankruptcy judges.[33] Sharfman (2005) discusses as a loss-aversion bias can affect bankruptcy judges, inducing them to undertake a pro-debtor orientation when allocating the value in the controversy between the debtor and the creditors. Wistrich et al. (2015) use an experimental setting to sustain that judges (including bankruptcy judges) may favour intuitive reactions over careful deliberative assessments, even if such reactions are evidently wrong. The authors report that this verifies also when judges face familiar job-related tasks. Even if this stream of research does not relate judges' deliberative mechanisms with the creditors' recoveries, it provides important insights in suggesting that the outcome of an insolvency proceeding (which includes the recovery rates) is somehow affected by the judge's individual deliberative process.

Huang et al. (2019) claim that the individual characteristics of the judges affect the legal outcome of a case. They demonstrate that judges' political ideology impacts on their judicial decisions, with serious economic consequences for firms, as it predicts the rate of lawsuit filings and the value of the settlements. Demonstrating that plaintiffs consider judges' ideology in their filing decisions, they conclude that the judge's ideology represents an additional factor of *ex-ante* litigation risk that can impact on the litigants' decision making. Extending such line of argumentation, we concentrate onto a further series of judges' individual features related to their

[32] The authors use the duration of bankruptcy proceedings as a proxy for court efficiency.

[33] Anchoring (overreliance on an initial numerical reference point) and framing (how an individual portraits and interprets a situation) are cognitive biases discussed in Prospect theory that, developing from the seminal work of Kahneman and Tversky (1979), explores the different types of cognitive biases that influence actors' deliberative process.

educational background, professional experiences, skills, and we study their impact onto the creditors' recovery rates. In other words, we argue that the financial performance of the bankruptcy procedure is not only affected by the provisions of the bankruptcy code and the financial/economic characteristics of the firms, but also by a human factor represented by the judges' individual characteristics.

This research aims at answering the following question: how do the individual characteristics of the bankruptcy judges influence the creditors' recovery rates resulting from the bankruptcy process? Respect previous studies, our work suggests that the human factor represented by the judges' individual characteristics constitutes an additional source of uncertainty for the firm and its creditors in the unfolding of the debt restructuring process, which can affect the litigants' decision making in bankruptcy. Such lens onto judges' individual features appears endorsed by two recent studies focusing onto the individual characteristics of bankruptcy judges. The study of Iverson et al. (2020) shows that judges' judicial inexperience negatively affects creditors' recovery rates; the work of Blazy and Esquerre (2021) proves as lay judges' individual traits impact onto firms' chances to reorganize in bankruptcy.

Our work proposes a new angle of investigation that transcends the legal provisions of insolvency codes that shape judicial discretion to deepen at the individual level of the judge, and we demonstrate how her/his very individual features affect the creditors' recovery rates. Hence, this work aims at inserting in the discussion of that stream of law and finance literature studying the factors affecting the financial performance of bankruptcy. With respect to such literature, the link between the human factor and the financial performance of bankruptcy constitutes, at the best of our knowledge, an element of novelty. The scanter attention this issue has received from the literature can be explained by the difficulties in accessing the needed sources which encompass the judgments, the content of the bankruptcy cases and the résumés of the judges that administered them.

The works of Huang et al. (2019), Wistrich et al. (2015) and Cohen and Yang (2019) suggest that when margins of judicial discretion are wide, the impact of judges' individual factors onto their decisions can increase. These in turn influence the proceeding's outcome, which in bankruptcy includes the creditors' recovery rates. We suggest that the higher the heterogeneity among the judges' profiles and the more evident the individual characteristics affecting the most the recovery rates. This indeed is the case in France. The French bankruptcy procedure is fully centralized around the lay judges, who have enforcement power all along the proceeding. Contrary to other systems where the adoption of the debt restructuring plan rests on a creditors' vote (as for the U.S., Italy, the U.K., Belgium among others), in France such decision is a prerogative of the

court. Thus, under the French bankruptcy code judicial discretion is maximized. Moreover, contrary to other systems, French bankruptcy courts are exclusively composed by lay judges, resulting in an extreme application of consular justice.[34] Lay judges differ by professional judges, in that they are merchants[35] elected (through a well-defined system) by other merchants. Before the election, the judges may have operated in a variety of sectors and studied in different fields. This makes the backgrounds of French lay judges more heterogeneous compared to those of professional judges with a full background in legal matters.

Given the heterogeneity of profiles and competences that lay judges show compared to professional judges, and given the wide judicial discretion the French bankruptcy system provides them, France proves to be an ideal setting to study the presence of a "judge factor" (if any) related to discrepancies among the profiles of lay judges (as individuals) that may affect the financial outcome of the bankruptcy process in terms of creditors' recovery rates. We thus focus on a series of factors accounting for the diversity of profiles among the lay judges.

Hambrick and Mason (1984), posing the basis of a stream of research known as "upper echelons theory", theorize that diverse elements of managers' background influence their decision-making. They discuss as managers' past career experiences as well as their formal education can exert a significant impact on the types of actions they undertake. Following their arguments, several papers empirically confirmed such approach. Wiersema and Bantel (1992) demonstrate how the managers' academic curriculum can significantly drive their strategic actions. Hitt and Tyler (1991) prove that the type of educational degree and of work experience of executives affect their decision process. Kauer et al. (2007) show that managers' past working experiences as well as personality factors as networking abilities have an impact on their decision-making. As French lay judges are businesspeople arising from the business community, we argue that similar individual factors can affect their deliberative process when administering a case, in turns affecting the bankruptcy outcome and thus the recovery rates. Moreover, Hambrick (2007) sustains that the impact of individual characteristics onto the deliberated actions is stronger when the margins of managerial discretion are wider. This agrees with the abovementioned assertions of Huang et al. (2019), Wistrich et al. (2015) and Cohen and Yang (2019) and it is perfectly in line with the ample judicial discretion of French lay judges.

[34] Jean (2007) discusses how the essence of consular justice derives from the period of the Renaissance, in line with the belief that disputes among merchants had to be resolved by merchants themselves.

[35] Following the French legal terminology, in our context the term "merchant" refers to individuals performing commercial transactions (i.e. businesspeople), independently by the sector of operations.

We thus concentrate on the same individual factors – namely, the judges' formal education, professional experiences and networking abilities – and we pose a series of hypotheses on how these affect the financial performance of bankruptcy in terms of creditors' recovery rates.

To explore these hypotheses, we rely onto original data that originate from the Commercial Court of Paris (*Tribunal de Commerce de Paris*). We manually collected the legal documents inherent to 223 bankruptcy proceedings opened in the Parisian tribunal between 2006 and 2012 (proceedings closed before 2019). In a second round of data collection, we gathered information through publicly accessible sources to reconstruct the résumés of the 61 lay judges that supervised them. From the legal documents we extracted precise accounting and financial data on the insolvent firms and on the amounts of debt recovered, that served us to compute, for each proceeding, the exact creditors' recovery rate.

To test our hypotheses we rely on OLS, Heckman and Tobit regression models. The econometric analysis validates our hypotheses. The results show that the very individual features of the lay judges composing bankruptcy courts affect the creditors' recovery rates. Indeed, judges' specific and general skills[36], professional experiences, and networking abilities significantly affect creditors' recovery rates. Namely, recovery rates significantly increase when judges possess specific financial-accounting skills and general management skills, when they had professional experiences in for-profit organizations as well as in firms that went bankrupt and when they are more interactive with other professionals in terms of digital professional networking. Vice versa, recovery rates significantly decrease when judges possess specific legal skills and when they had professional experiences in non-profit organizations – appearing in these cases more oriented toward the social stakes involved in the bankruptcy process, as also prescribed by the French insolvency law that postpones debt recovery to the safeguard of the business and of the employment – as well as when they show a closer proximity to the business community in terms of mandates detained in various organizations. Our results also suggest that a higher presence of women within the panel of supervising judges can be highly beneficial for increasing the quality of proceedings' administration. Indeed, a higher gender diversity in the court may foster creativity and innovation in the definition of adequate solutions to complicate litigations, leading the panel of supervising judges to more effective team decision making.

These findings thus confirm as a microeconomic examination of the judiciary involved in the bankruptcy process is a necessary passage to fully appraise the performances of a bankruptcy

[36] As we explain in detail in Section 3, the seminal paper of Becker (1964) distinguishes between firm-specific human capital and general human capital; in our context the first refers to the skills within a specific subject the judges have accumulated throughout their professional career, whereas the second refers to the formal education background formed throughout their university path.

system. We believe the results can be extended to other consular as well as mixed consular systems (where the court is composed by both professional and lay judges) and in all those contexts where the judges have significant judicial discretion (the envisaged effects may be proportional to the actual degree of judicial discretion and heterogeneity across judges' profiles).

In terms of practical implications, our results provide elements to the firm's managers, the creditors, the insolvency practitioners representing them to gauge the human factors that can affect the debt restructuring process. A deeper comprehension of the human traits impacting on the bankruptcy procedure may ease the confrontation among the diverse parties and facilitate the achievement of a shared settlement to the firm's insolvency. Moreover, judges' awareness of the individual factors potentially affecting their deliberation mechanisms can guide them in undertaking more suitable decisions contingently with the actual case. All this is expected to improve the efficacy and efficiency of the bankruptcy process, facilitating negotiations and increasing chances for successful debt restructuring. In addition, the detection of such judges' factors represents an opportunity for the legislator to design the bankruptcy system in a way to exploit those with positive impacts on its performances.

The rest of the study is organized as it follows. Section 2 provides a picture of French commercial justice in the context of insolvency proceedings. Section 3 presents our arguments and hypotheses; Section 4 describes the data collection process, the research method and the constructs adopted for econometrical analysis. Section 5 reports the empirical analysis, presenting the descriptive statistics over the sampled firms, their causes of default and the profiles of the judges that administered the studied proceedings, as well as the results from econometrical analysis. Section 6 discusses our findings and last section concludes, illustrating the implications and the limitations of the research, and suggesting developments for further investigations.

2. French Insolvency Law

The in force French insolvency law derives from a reform process of the bankruptcy code that rests on the Law no. 85-98 of 25 January 1985, Law no. 94-475 of 10 June 1994, Law no. 2005-846 of 26 July 2005. The bankruptcy code involves three court-administered procedures. The 1985 Code introduced one procedure aimed at firm's reorganization (*Redressement judiciaire*, RJ) and one at firm's liquidation (*Liquidation judiciaire*, LJ). A third procedure, *Sauvegarde*, was then introduced in 2005 as a preventive procedure aimed at firms facing difficulties but still solvent. Two types of out-of-court settlements are provided too, *Mandat ad-hoc* and *Conciliation*. As these two

constitute voluntary, amicable agreements, with no court's involvement, they are outside the scope of our analysis.[37]

Art. 1 of the 1985 Code defined the priorities of the insolvency law, ranking first the continuation of the business, second the safeguard of employment and third the repayment of liabilities. As Davydenko and Franks (2008) discuss, to achieve these goals the procedure is strongly court-administered, with notable decisional power reserved to the judges. Judges indeed maintain ample judicial discretion and are entitled a number of key decisions. At bankruptcy triggering, on the opening judgment, the court decides between direct liquidation (LJ) and the reorganization procedure (RJ). The decision is based on the state of distress of the insolvent firm. If the court envisages some chances for business' recovery, then it opens the RJ and consequently an observation period lasting up to 20 months. An automatic stay of assets enters in force (except for new money claims). The court nominates a creditors' representative (*Mandataire judiciaire liquidateur*) and a firm's administrator (*Administrateur judiciaire*) who supports the firm's managers in undertaking restructuring measures (that need court's authorization) and elaborates a restructuring plan. The plan is then submitted for court's approval. Either the firm is rescued, and the reorganization plan adopted for implementation or, if firm's recovery is not viable, the court converts the procedure into LJ (i.e. firm's liquidation). The court can indict LJ even after the adoption of the plan if its implementation fails. Since 2005, *Sauvegarde* is available to firms experimenting difficulties without being in default yet. Only the debtor can trigger it, it has mainly a preventive aim and, similarly to RJ, an observation period is opened by the court that appoints a creditors' representative and a firm's administrator. A plan is then elaborated by the latter and submitted for court's approval. Yet, if during the observation period the distress of the firm worsens, the court can convert the procedure into RJ or into LJ. LJ can be triggered also after the plan's approval if its implementation is not successful. Throughout the several passages, all these court's decisions can heavily influence how the bankruptcy process progresses.

As notable difference respect other insolvency frameworks, the French bankruptcy system does not reserve creditors a veto power on the restructuring plan.[38] This differs by the case of several other countries where the adoption of the restructuring plan rests on the vote of creditors, as

[37] Two other procedures were then added in 2014 (*Ordonnance* n. 2014-326 of 12 March 2014), *Rétablissement professionnel* (a procedure reserved to individual entrepreneurs without employees and assets inferior to 3000 €) and *Sauvegarde accélérée* (an accelerated version of *Sauvegarde*). Yet, these more recent changes are outside the scope of our work (focused on corporate and not on individual bankruptcy) and the time range of our analysis (proceedings opened between 2006 and 2012 and closed within 2019).

[38] Creditors can convey to the court their not binding opinions through the creditors' representative. For bigger affairs (turnover exceeding 20 million Euros and more than 150 employees) creditors are grouped in committees and, within each committee, they vote on the restructuring proposal; yet, their vote is not binding as the final decision on the plan belongs to the court.

for the U.S. (Franks and Torous, 1994; Chatterjee et al., 1996), Italy (Rodano et al., 2016), Germany (Brunner and Krahnen, 2008), Belgium (Dewaelheyns and Van Hulle, 2008; 2009), Finland (Collett et al., 2014), the U.K. (Franks and Sussman, 2005). In addition, the court is not mandated to adopt the plan maximizing debt recoveries (in this respect Blazy et al. (2011) prove that the key driver of the court's decision in the choice between rival buyout offers is the protection of employment).

Following Davydenko and Franks (2008), the French bankruptcy system appears thus unfriendly to creditors, whose role is "reduced to an advisory function" (p. 566). This is confirmed also by La Porta et al. (1998) who assign to France the minimum value of their creditors' rights index (0, in a scale from 0 to 4) and report that French-civil-law countries assure creditors, on average, the weakest protections.[39]

An ulterior factor characterizing the French bankruptcy system is the fact that bankruptcy courts are composed entirely by lay judges (*juges consulaires*).[40] Lay judges in France are merchants (businesspeople, in a more extensive form) elected by an electoral college formed by current and former judges of the commercial court and by the merchants' delegates (*délégués consulaires*), who are elected among merchants themselves. The first term of the lay judge's mandate lasts two years; it can be renowned up to three times of four years each (remaining thus in charge up to 14 years totally). Consequentially, differently by professional judges whose education and training in law make their backgrounds more homogeneous, the professional as well as educational backgrounds of lay judges vary sensibly.

The diverse profiles of French lay judges, combined with their wide judicial discretion, creates thus an additional factor of uncertainty for creditors. Indeed, the bankruptcy outcome (including debt recoveries) is largely dependent upon the judges' decisions. Blazy et al. (2013) discuss as the decisional power of French judges can have a negative impact on recovery rates, as French bankruptcy law priorities the recovery of the firm and the safeguard of employment respect to debt repayment. Hence, understanding what guides judges' decisions permits to mitigate such uncertainty on the financial outcome of bankruptcy.

[39] Yet, Blazy et al. (2013) discuss as recent amendments of the French bankruptcy code aimed at reinforcing creditors' rights. Also, weaker creditors' rights do not necessarily lead to lower creditors' recovery rates. La Porta et al. (1998) assign to the U.K. the maximum value of their creditors' rights index (4); yet, in the comparison between French and English procedures, Blazy et al. (2013) associate to *Redressement judiciaire* the highest average recovery rate (46%). Also, they report a higher recovery rate for the French *Liquidation judiciaire* (20%) compared to that of English liquidations (13% for voluntary liquidation and 9% for compulsory liquidation). They explain that several factors affect debt recoveries, including the financial state of the firm at bankruptcy triggering, the structure of the claims, the amount of bankruptcy costs and the legal features of the procedure.

[40] Blazy and Esquerre (2021) remind the exception of the Alsace-Moselle region (France), where commercial courts are composed by both professional and lay judges, following a mixed consular system.

Huang et al. (2019) claim that the individual characteristics of the judges affect their decisions and thus the legal outcome of a case. Moreover, several studies (Wistrich et al., 2015; Huang et al., 2019; Cohen and Yang, 2019) suggest that the influence of judges' individual factors onto their decisions is larger when judges possess wide judicial discretion. Besides, diverse authors (e.g. Hambrick and Mason, 1984; Hambrick, 2007; Kauer et al., 2007) highlight a series of managers' individual features affecting their decision-making. As lay judges are businesspeople too, we argue that similar individual characteristics can guide their judicial decisions. In other words, we argue that the heterogeneity in their backgrounds affects the way they adopt their judicial discretion to purse the priorities of the bankruptcy code. This, as result, is expected to impact on the creditors' recovery rates.

3. Hypotheses

The issue if judges can judge strictly applying the law independently from their own beliefs and emotions is an old dispute in the field of law. Wistrich et al. (2015) discuss how judges, when directly appointed on this point, openly embrace a totally rational approach to deliberation. Yet, empirical results provide a different picture, suggesting that judges arbitrate surely through rational decision-making, but – as for any human decision – are also subject to behavioural biases that vary with the supervised case. Supporting this view, United States Supreme Court Justice Robert Jackson portrayed "dispassionate judges" as mythical beings similar to "Santa Claus or Uncle Sam or Easter bunnies".[41] Following that perspective, Wistrich et al. (2015) concentrate on the role of emotions. They demonstrate, through an experimental setting, that judges' decisions can be influenced (consciously or not) by their feelings toward the disputing parties. They also suggest that the role of emotions may even be stronger when margins for judicial discretion are wide.

Rachlinski et al. (2006) examine bankruptcy judges' decision making. They find that anchoring – overreliance on an initial numerical reference point – and framing – how an individual portraits and interprets a situation – influence the deliberative process of bankruptcy judges. Biases by bankruptcy judges during cases' administration are reported also by Sharfman (2005). These results are crucial in the bankruptcy context as they suggest the existence of a relation between individual factors pertaining to the judges and the outcome of the procedure, a connection highlighted also by Huang et al. (2019). Moreover, as envisaged by several authors (Wistrich et al.,

[41] See "United States v. Ballard, 322 U.S. 78 (1944)".

2015; Huang et al., 2019; Cohen and Yang, 2019), such relations may be even stronger in presence of wide judicial discretion, which, as described, is proper of the French bankruptcy system.

It is important to stress that French lay judges are merchants arising from the business community. Hambrick and Mason (1984) theorize that the background of managers (their education, acquainted skills, professional career) affects their decision-making, posing the basis of a stream of research known as "upper echelons theory". Several papers empirically tested their predictions, and confirmed that individual factors can play a relevant role in guiding decisions. Hitt and Tyler (1991) demonstrate that the work experience and the type of educational degree are elements guiding executives' decisional process. Wiersema and Bantel (1992) show how managers' strategic actions are significantly affected by the academic curriculum they pursued. Kauer et al. (2007) confirm that managers' past working experiences have an impact on their decisional process, and they prove that networking abilities positively influence the speed of strategic decision-making. Moreover, in a revision of the theory, Hambrick (2007) argues that the effects of individual characteristics onto the deliberated actions are stronger when the margins of discretion are wider, a point close to the one of Wistrich et al. (2015), Huang et al. (2019) and Cohen and Yang (2019) just mentioned, and perfectly in line with the significant judicial discretion of French lay judges.

French lay judges are businesspeople arising from the business community. We thus argue that similar individual factors can guide their decision-making when administering a case. This in turn is expected to affect the outcome of the bankruptcy process and so the creditors' recovery rates. We thus concentrate of these same factors – namely, judges' skills acquainted throughout their education and professional career, professional experiences, networking abilities – and we develop a series of hypotheses on their expected impact onto the financial output of bankruptcy, i.e. the creditors' recovery rates.

Judge's specific and general skills

Bankruptcy literature recognizes the in-court process as a setting that allows to attenuate coordination problems among diverse claimants (Gilson et al., 1990; Weiss, 1990; Chatterjee et al., 1996; Jostarndt and Sautner, 2010). Namely, the legal provisions of the bankruptcy code discipline how the recovered amounts must be divided and in which order. In practice, a stay of claims (supervised by the court) usually prevails in most bankruptcy procedures to prevent that a creditors' run destroys eventually the chances to reorganize and/or undermines the value of the debtor's assets. Bankruptcy thus rests on legal mechanisms. In addition, several authors discuss how bankruptcy should lead to efficient financial outcomes that permit to spur the debt recoveries (Blazy

et al., 2013; Armour et al., 2008; Couwenberg and de Jong, 2008; Davydenko and Franks, 2008; Blazy et al., 2017). In this vein, the debt restructuring process involves thus financial and accounting matters too.

Human capital theory distinguishes between firm-specific human capital and general human capital, as originally proposed by Becker (1964). In our context the first refers to the skills within a particular subject the judge has accumulated throughout the professional career, whereas the second refers to broader competences acquired in the university education. This distinction is important in our context. Indeed, the complexity of the legal and financial-accounting matters involved in a bankruptcy proceeding makes essential for the judges to possess both legal and financial-accounting specific skills. Moreover, their role renders also needed some general management skills to undertake adequate decisions in relation with the firm's actual situation (e.g. the approval/denial of restructuring measures), and to manage the overall procedure in an efficient manner.[42]

As discussed, French insolvency law prioritizes the recovery of the business and employment's safeguard to the repayment of debt. This means that the French bankruptcy procedure does not necessarily lead to the outcome maximizing debt recoveries. A plan that allows the recovery of the firm and the safeguard of job places offering low recovery rates may be preferred by the judge (who has enforcement power over the reorganization plan) respect a plan where recovery rates are maximized but the firm is dismantled and job places are lost. This is confirmed by the work of Blazy et al. (2011) who, studying a set of French bankruptcy proceedings, prove that French judges tend to privilege outcomes safeguarding employment preservation respect creditors' repayment.

The abovementioned stream of research (Hambrick and Mason, 1984; Wiersema and Bantel, 1992; Hitt and Tyler, 1991) illustrates as the type of education is a significant driver of decision-making. We argue that specific financial-accounting skills can guide judges in undertaking decisions that, *ceteris paribus*, permit to prompt recovery rates. This may happen, for instance, via judicial decisions that preserve adequately the value of the debtor's assets. Diversely, we argue that specific legal skills drive judges to undertake judicial decisions that prioritize the continuation of the business and the safeguard of employment (in line with the priorities of the French bankruptcy code), with a negative effect on debt recoveries. We thus pose the two following hypotheses:

H1A: Judge's specific financial-accounting skills positively affect the amount of creditors' recovery rates.

[42] We suggest the opposite would not be optimal: having specific management skills and general financial-accounting or legal skills would impede the judge to face the complex legal and financial-accounting matters arising in bankruptcy litigations.

H1B: Judge's specific legal skills negatively affect the amount of creditors' recovery rates.

Bankruptcy is a complex process aimed at solving coordination issues among diverse claimholders (Gilson et al., 1990; Chatterjee et al., 1996; Jostarndt and Sautner, 2010), and the judge is the actor guiding the whole process that must manage an intricate net of conflicting interests to find a settlement to financial distress. Hambrick and Mason (1984) discuss as an education in management supports in dealing with forms of administrative complexity. A bankruptcy litigation surely represents an exemplificatory case in this sense. General management skills can assist the judges in administering the proceedings efficiently. Moreover, judges possessing general management skills are expected to undertake more suitable decisions in relation with the debtor's actual situation, for instance via the grant of effective restructuring measures. This is expected to minimize, *ceteris paribus*, the drop of firm's assets value that can verify in long and tedious litigations (Weiss and Wruck, 1998) or as consequence of unsuitable restructuring measures, with beneficial effects for recovery rates. As such we pose:

H1C: Judge's general management skills positively affect the amount of creditors' recovery rates.

Judge's professional experiences

The works of Hambrick and Mason (1984) argue that past career experiences partially shape the lenses through which present situations and problems are dealt with. They assert that past professional experiences exert a significant influence on the decision-making process, and Hitt and Tyler (1991) and Kauer et al. (2007) empirically proved it. This means that diverse professional experiences can guide individuals to react differently to the same situation. Similar arguments are proposed also by Hambrick (2007), who suggests that the effect of individual characteristics onto decision-making is stronger in presence of wider margins of discretion.

The previous arguments can apply to lay judges too. Before their nomination, they can have operated in a variety of ambits, showing high heterogeneity among their professional experiences. Some of them may have operated in for-profit organizations, and others in non-profit organizations. We argue that judges who, before their appointment, developed professional experiences in for-profit organizations are more familiarized with value maximization, inducing them to undertake decisions that increase the financial performance of bankruptcy and thus the recovery rates. Differently, we argue that judges who, before their election, developed professional experiences in non-profit organizations are more oriented toward the social stakes of bankruptcy, inducing them to favour solutions safeguarding business' recovery and employment, with a negative impact on debt

recoveries. Moreover, we expect such effects to be stronger when judicial discretion is wide, as for French lay judges. We thus propose the following:

H2A: Judge's professional experiences in for-profit organizations positively affect the amount of creditors' recovery rates.

H2B: Judge's professional experiences in non-profit organizations negatively affect the amount of creditors' recovery rates.

An ulterior factor we conjecture can affect the judge's deliberative process is the fact she/he developed professional experiences in firms that in that time went bankrupt. Iverson et al. (2020) prove that creditors' recovery rates increase when the case is administered by more experienced bankruptcy judges compared to recently appointed judges. If the judge had professional experiences in bankrupted firm, she/he faced in first person, in that very first time, the dynamics of the bankruptcy procedure, but from the debtor's perspective. This deepens the familiarity of the judge with the mechanisms of the proceeding unfolding also on the debtor side, in addition to those on the court side, enhancing her/his overall knowledge of the bankruptcy process. As Iverson et al. (2020) discuss, a higher familiarity with bankruptcy administration shall increase judge's efficiency and lead toward more appropriate rulings in relation with the specific case. This, *ceteris paribus*, is expected to have beneficial effects on debt recoveries. We thus pose:

H2C: Judge's professional experiences in firms that went bankrupt positively affect the amount of creditors' recovery rates.

Judge's involvement in the business community

Lay judges in France, as said, are merchants (businesspeople) elected by the merchants' community. Their election suggests that they have developed a wide professional network that, at least indirectly, may have supported them for the nomination, with strong ties within the business community. Kauer et al. (2007) demonstrate that managers' networking abilities have a significant effect on decision making. Again, being lay judges businesspeople too, we argue that the same arguments can apply. We thus investigate how their ties with the business community affect their administration of the bankruptcy process and, consequently, its financial performance in terms of recovery rates.

The research of Flood and Skordaki (1995) on the work of bankruptcy practitioners indicates that creativity is an important resource for finding original solutions to the firm's crisis. Fich and Slezak (2008) suggest that, in period of distress, a wide net of business contacts can increase the likelihood of finding strategic alliances or partners that may allow the firm to turnaround. Moreover, the results of Kauer et al. (2007) suggest that a wider network of contacts allows the individual to adapt more easily to new ideas and to develop strategic alternatives, positively affecting the speed of decision-making. Following this view, we argue that judges who are interactive with their professional network can more easily enlarge the heterogeneity of their knowledge and can more handily benefit from professional consulting when needed. This can increase the quality of their administration over bankruptcy litigations, with beneficial effects, *ceteris paribus*, on the financial outcome of the procedure (and thus on the recovery of debt). In addition, we expect interactivity in the professional community to be facilitated when judges dispose of a large digital professional network. Therefore, we pose:

H3A: The dimension of the judge's digital professional network positively affects the amount of creditors' recovery rates.

Lay judges, being businesspeople with high visibility, can detain relevant roles in business organizations (for instance as board members, or as firm's administrators), roles that they are allowed to maintain during their service as judges. We shall expect that judges detaining a higher number of mandates in business organizations have a better knowledge of the business community as well as stronger ties in it. There are arguments suggesting that such closer proximity to the business community should facilitate their administration of bankruptcy cases, whereas others suggesting that it may hamper it, with doubtful final effects on the financial performance of bankruptcy in terms of recovery rates.

Following the first, a closer proximity of the judges to the business community (in terms of mandates in business organizations) shall strengthen their professional network. This, with a reasoning alike that illustrated for *H3A*, is expected to have a positive effect on the quality of their administration over bankruptcy proceedings. Also, a deeper knowledge of business organizations can induce judges in undertaking more appropriate decisions in relation with the actual debtor's distress. *Ceteris paribus*, thus, a higher proximity of the lay judge to the business community, in terms of number of mandates held in diverse organizations, may have a positive effect on the financial performance of the procedure and thus on debt recoveries.

Yet, some authors (e.g. Colcombet and Montebourg, 1998) signal as an excessive proximity of lay judges to the business community may be detrimental for the quality of their administration over bankruptcy litigations (for instance, conflicts of interests may arise[43]), and their deliberation may result somehow biased (e.g. being excessively permissive with the insolvent firm thus lengthening the proceeding). This may exert a negative influence on the efficiency of the bankruptcy process and thus on its financial performance in terms of recovery rates. Moreover, a high number of mandates in various organizations may result for lay judges in work overload. Lazega et al. (2006) analyse the network structures among lay judges in the Commercial Court of Paris, suggesting that some can be hampered by work overload. Work overload may result in inefficient administration of the proceedings, with a decrease in the quality of the restructuring process. Rodano et al. (2016) and Melcarne and Ramello (2020) discuss the positive effects of the efficient administration of bankruptcy proceedings. Inefficient and delayed litigations can cause the drop of value of the debtor's assets (Weiss and Wruck, 1998), with detrimental effects on recovery rates. As such, *ceteris paribus*, a high proximity of the lay judge to the business community, in terms of number of mandates held in diverse organizations, may negatively affect the financial performance of bankruptcy and so the recovery rates. The issue of which of the two effects dominate the other, finally impacting debt recoveries, is thus a matter of empirical verification. As such, we propose the two alternative hypotheses:

H3B: The judge's higher number of mandates in the business community positively affects the amount of creditors' recovery rates.

H3C: The judge's higher number of mandates in the business community negatively affects the amount of creditors' recovery rates.

4. Data and methodology

4.1 Data collection process

The data collection process involved two distinct sources, one related to the legal papers inherent to the studied cases and another related to the résumés and to other public information on the lay judges that supervised them.

[43] Such occurrence is anyway limited by lay judges' deontology, that is formally regulated by the French law (Decree no. 2016-514 of 26 April 2016).

Concerning the first source of information, we hand-collected at the Parisian commercial court (*Tribunal de Commerce de Paris*) the legal documents relative to 223 bankruptcy proceedings triggered in Paris in the period 2006-2012 (cases closed within 2019). This is the largest commercial tribunal in France, with a mean of 3'630 insolvency proceedings opened yearly between 2006 and 2012 (OCED, 2019), which corresponds, for this same period, to the 7% of French bankruptcy proceedings and to the 22% if comprising the Parisian hinterland (Blazy and Esquerre, 2021). The sampling method relied on a stratified random selection process. We adopted two strata for random selection, to account for the type of insolvency procedure and for the year of opening judgement. Indeed, at the country level, *Sauvegarde* represents the 2.1% of in-court procedures, RJ the 30.5% and LJ the 67.4% (period 2006-2019)[44], whereas at the Parisian level LJ represents the 88% of bankruptcy procedures, with RJ and *sauvegarde* representing, respectively, the 11% and the 1% (OCED, 2019). Thus, a non-stratified random selection process of the legal papers would have brought to an irrelevant account of these two latter procedures. To prevent this, we delineated three more balanced strata: 36% for LJ, 37% for RJ and 27% for *Sauvegarde*. Then, within each stratum, the registry of the Paris commercial tribunal performed a random draw in a list reporting proceedings' identification numbers for proceedings opened in the period 2006-2012, and they provided us with the related bankruptcy papers. Due to stratification, for statistical analysis we then restored the structure of the Parisian insolvency proceedings reweighting the statistics on the overall sample. A second stratum was labelled on the year of procedure's opening, so that each year in our timeframe (2006-2012) accounts between 8% and 17% of the analysed proceedings.

The legal documents inherent to the 223 bankruptcy cases were then analysed. Some documents are more relevant than others for our analysis due to the reported information. In the *declaration de cessation des paiements* the firm's managers declare the state of default. The document reports a first estimate of the claims and of the firm's assets at market values, and possibly a brief description of the causes of default, identifying the firm and its administrators. Two other fundamental documents are the report of the court-appointed firm's administrator (*bilan économique et social*) and the report of the court-appointed creditors' representative (*état des créances*). In the first, the firm's administrator attests the market value of the firm's assets and presents in more detail the *ex-post* checked causes of default, commenting any acquisition offer and providing the court with her/his overall impression on the restructuring issue. In the second, the creditors' representative identifies the claimholders, their level of priority and the value of the diverse recognized claims as well as the final amounts of debt recovered in the proceeding.

[44] Data are from Altares (2020), *Défaillances et sauvegardes d'entreprises en France – Bilan 2019*, and from Altares (2010), *Défaillances et sauvegardes d'entreprises en France – Bilan 2010*.

The legal documents also report the names of the judges of the panel that administered the case. 61 judges were involved in administering the 223 analysed proceedings (for our weighted sample, an average of approximately 4 judges per proceeding). Thus, the second step of data gathering regards the reconstruction of judges' profile. At today, 172 judges operate regularly at the Paris commercial tribunal.[45] Between 2017 and 2018 we rebuilt and codified the profiles of the 61 judges who oversaw our sampled proceedings, triangulating data from multiple sources. Most of them had developed a visible professional career; as such, despite deep investigation was necessary, several public sources kept track of their résumés. Some judges have a personal website, and some are members of ADEC (*Association d'arbitres D'Expérience Consulaire*), whose website provides the detailed résumés of its members. Other online complementary sources proved useful, namely Viadeo©, LinkedIn©, Who's Who©, *lesbiographies.com*, the websites of the companies where they operated as well as specialized press. The website *dirigeants.com* provided information on the judges' mandates in the different organizations (for instance as board member, as CEO or in other capacities). We also collected data on the firms where the judges operated before their nomination (from *societe.com*, *verif.com*); Infogreffe© (*infogreffe.fr*) provided us with the information if such firms went bankrupt. At this aim, also French and international specialized press revealed useful, especially for older corporates that bankrupted farer in the past. Concerning judges' education profile, despite such evidence was already present in their publicly available résumés, we also examined the *Alumni* directories of various academic institutions to refine the information in our possess. Data triangulation from these various sources allowed also to prevent any homonymity issue.

Once data collection was completed and information assembled, we merged the data on the bankrupt firm (financial-accounting figures, structure of claims, causes of default), on the judges belonging to the panel that supervised the case and on the amounts of debt recovered by each class of claimants. The next section describes the resulting variables accounting for both the firm's and judges' factors.

4.2 Variables

Debt recovery rate

The debt recovery rate is the fraction of debt collected by the creditors out of the total due claims. The bankruptcy code identifies the different types of claimants (e.g. the State, the

[45] Source: https://www.tribunal-de-commerce-de-paris.fr/fr/juge-consulaire [Access date: 15/06/2020].

employees, the financial creditors, the suppliers) and defines the priority order following which they will be paid, a mechanism known as "absolute priority rule" (APR).[46] For each class of claimants the debt recovery rate thus can differ. Moreover, the operations for the recollection of debt may last a consistent amount of time. In case of liquidation, the liquidation process may require years, and similarly for reorganization plans (in our sample reorganization plans last almost 7 years, on average). Consequently, the amounts recovered by each class of creditors must be discounted to compute their present value. Through the analysis of legal documents we could define when the claims were paid off; knowing the time in which the proceeding was opened, we could determine the time window over which discounting the recovered amounts. For discounting, we use the interest rate paid on French 7 years Treasury bond[47] which has a duration similar to the average duration of debt restructuring plans in our sample. The present value of debt recovered by all the claimholders divided by the overall recognized due claims leads to the total creditors' recovery rate. This rate represents the percentage of debt recovered by the whole set of junior, preferential and secured creditors (at present values).[48] *Table 1* summarizes the list of variables and the constructs adopted for the empirical analysis.

Judges' variables

A series of variables refers to judges' individual profiles. A first set of variables captures the specific and general skills of the judges.[49] As discussed in Section 3, law, finance and management skills appear particularly relevant in the context of French consular justice. Consequently, three variables account for the judges' specific skills in finance-accounting (S*pec. skills – Finance-Accounting*), law (*Spec. skills – Law*) and management (*Spec. skills – Management*).[50] We operationalize the specific skill in a subject as a dummy that equals 1 if the judge's résumé reports professional experiences related to such specific skill, and 0 otherwise. Three variables account for

[46] Following the French bankruptcy code, the APR is defined as: 1) super-privilege claims of employees (two last months of unpaid wages); 2) bankruptcy costs; 3) secured long-term claims financing equipment (under liquidation only); 4) new money claims; 5) other secured claims and preferential claims (e.g. State claims, other employees' claims); 6) unsecured claims; 7) shareholders. Deviations from APR are anyway possible under a continuation plan. Indeed, Hart (2006) discusses how some degree of elasticity in respecting the APR may be beneficial to the debt restructuring process.

[47] For each year we compute the annual average interest emission rate.

[48] In order to focus on the firm's stakeholders' overall recoveries, we exclude the insolvency practitioners' recoveries that represent direct bankruptcy costs paid out of the firm's assets.

[49] We recall that, as illustrated in Section 3, in our context the specific skills refer to those the judge has accumulated in a particular subject throughout the professional career, whereas the general skills refer to broader competences acquired in the university education.

[50] For econometrical implementation we control for the judges' specific skills in management (those acquired throughout the professional career) given that we developed a hypothesis on the role of the judges' general management skills (those acquired throughout the university education).

the judges' general skills in economics and finance (*Gen. skills (diploma) – Economics-Finance*), law (*Gen. skills (diploma) – Law*), and management (*Gen. skills (diploma) – Management*). These variables cover the initial knowledge acquired during the university education, and we operationalize them as the number of achieved diploma within each subject.[51] A series of variables captures judges' professional experiences before their nomination. Three variables account for their positions in for-profit organizations as the total number of jobs as manager (*Job - For-profit - Manager*), executive (*Job - For-profit - Executive*) or employee (*Job - For-profit - Employee*) in for-profit organizations during the whole career. One variable accounts for the total number of jobs in non-profit organizations (either as member of a NGO, a political party and/or as volunteer) during the whole career (*Job - Non-Profit*). One variable accounts for the number of bankrupted companies in which the judge has worked during her/his career (*Job - Bankrupted firm*). Two variables seize the judge's involvement in the business community. *Digital professional network (LinkedIn connections)* captures the dimension of the judge's digital professional network considering the number of LinkedIn connections. Indeed, recent works (Banerji and Reimer, 2019; Song and Vinig, 2012) prove that the number of LinkedIn connections is a fine measure of the size of the professional network of entrepreneurs (who, as lay judges, are businesspeople), which positively relates to the financial and economic outcomes of their operations. *Mandates* captures the number of mandates detained by the judge in the various organizations (as board member, CEO, firm's administrator or in other capacities). These are reported by the specialized website *dirigeants.com*.[52] The greater the number of the judge's mandates in various organizations and the closer she/he is expected to be to the business community. Lastly, we consider the judges' gender (a dummy variable that equals 1 if the judge is a woman and 0 if the judge is a man).

Several judges compose the panel administering a bankruptcy proceeding. Thus, for each bankruptcy case in our dataset, we consider the aggregated values of all the judges of the supervising panel (for instance, if the panel is composed of two judges having, respectively, 2 and 3 professional experiences in non-profit organizations, *Job - Non-Profit* equals 5 for this panel). This permits us to consider the overall skills and features of the panel of judges administering each proceeding. Also, as the judges aggregate in the panels in diverse combinations, each proceeding is

[51] For econometrical implementation we control for the judges' general skills in economics-finance and in law, given that we developed hypotheses on the role of their specific finance-accounting and law skills. Also, university tracks in finance/accounting tend to involve economics related subjects as well (and vice versa), so that, for the sake of preciseness, we consider jointly the general skills in these close fields.

[52] The numbers of LinkedIn connections and of mandates are measured at the time of data collection, after the judges supervised the bankruptcy affairs, making them imperfect proxies of their involvement in the business community at the time of bankruptcy's supervision. Yet, time incoherence is partly mitigated by the fact that this holds for all the judges, thus, assuming that their LinkedIn connections and mandates grew at the same path, the relative distances between the number of their LinkedIn connections and of their mandates in various organizations should be similar within a time range of a few years.

supervised by a distinct and unique panel, thus preserving the independence of the observations. For econometrical implementation, we apply the natural logarithm of the values to all the judges' variables (adding 1 to avoid *Ln*(0); thus, referring to the above example, for econometrical implementation *Job - Non-Profit* equals *Ln*(1+5) = *Ln*(6)).

Firm's variables

Previous bankruptcy literature identifies a series of firm's factors affecting the debt renegotiation process as the structure of claims (White, 1989; Bebchuk and Fried, 1996; Bergström et al., 2002), firm's solvency (Chatterjee et al., 1996; Franks and Torous, 1994), firm's size (Chatterjee et al. 1996; Moulton and Thomas, 1993; Blazy et al., 2014), the types of assets (Gilson et al., 1990) and the causes of default (Blazy et al., 2011; 2013; 2017). Our study encompasses all these factors, relying on the legal papers of the proceedings. Bankruptcy files indeed report the financial-accounting figures on the firm, with firm's assets inscribed at their market values at bankruptcy triggering. For the causes of default we rely on the classification proposed by Blazy et al. (2011; 2013; 2017), extracting the causes of default from the legal papers (as described above, the court-appointed firm's administrator reports the causes of firm's default in her/his audit over the insolvent firm). Blazy et al. (2013) show that proceedings ending up in firm's reorganization grant on average higher debt recovery rates compared to liquidation outcomes; we thus control for the firm's exit path from the proceeding through a dummy variable (continuation vs. liquidation).[53] Several authors underline as also the macroeconomic trend affects the in-court debt restructuring process (e.g. Denis and Rodgers, 2007; Collett et al., 2014); we thus control for the French GDP annual growth rate in the period of interest (this is all the more justified in our study considering that our dataset covers the years of the 2009 European financial and economic crisis).

[Insert *Table 1* here]

4.3 Research strategy

To test our hypotheses, we regress the debt recovery rate on the abovementioned judges' and firm's factors, controlling as well for the macroeconomic trend. We test the effect of the specified judges' factors on the debt recovery rate. We firstly rely on OLS regression, then verifying the

[53] We consider the economic outcome of the proceeding, not the legal one. Thus, our study classifies as liquidation outcome the case of a firm that is initially reorganized but afterwards fails thus leading to liquidation. The information on the economic outcome of the cases is retrievable from the bankruptcy documents.

robustness of our findings through Heckman and Tobit models. The model to be tested assumes so the general form presented in *Equation 1*:

$$Debt\ recovery\ rate_i = \beta_0 + \beta_1\ Judges'\ factors_i + \beta_2\ Firm's\ factors_i + \beta_3\ GDP\ Growth + \varepsilon_i \quad [1]$$

The extended definition of each variable is reported in *Table 1*. The dependent variable is the *Debt recovery rate*$_i$, which represents the overall discounted debt recovery rate for firm *i*'s proceeding taking continuous values between 0 and 1. Concerning explanatory variables, *Judges' factors*$_i$ includes the above-described variables reflecting the individual features of all the judges in the panel that supervised the firm *i*'s proceeding: their specific and general skills, their professional experiences in for-profit and non-profit organizations and in firms that went bankrupt, their involvement in the business community in terms of size of their digital professional network and of number of mandates in various organizations; *Firm's factors*$_i$ includes:

– a series of accounting and financial factors for the firm *i*, namely: market value of the assets (total, at bankruptcy triggering), coverage ratio, structure of the assets (in percentage: receivables, inventory, tangibles, intangibles) and of the due claims (employees, State, secured creditors);
– the causes of default for the firm *i*: Production, Finance, Strategy-Management, Accident, Outlets, External environment (see Section 5.1 for the classification of the causes of default from bankruptcy papers);
– the firm *i*'s exit path from the bankruptcy process (continuation vs. liquidation);

GDP Growth refers to the annual growth rate of the French GDP; ε_i is the error term associated to the firm *i*.

5. Empirical analysis

5.1 Descriptive statistics

Descriptive statistics on the firms

Table 2 reports some general features of the sampled bankrupt firms (223 proceedings). Mean, median and standard deviation are displayed by economic outcome of the proceeding –

liquidation for 174 firms, successful reorganization for 49 firms (whatever if the firm initially applied to LJ, RJ or *Sauvegarde*) – and last columns report reweighted figures on the total dataset.

Similarly to what found by other studies on French insolvencies (e.g. Blazy et al., 2013; 2014), our dataset is mostly made by young SMEs, with liquidated firms being younger, on average, than those that successfully reorganized (respectively, 5.5 and 6.7 years). Also, liquidated firms result smaller, on average, than reorganized ones when looking at the number of employees (respectively, 6 and 8 employees) and at the total assets (329.400 € and 5.482.300 €). This matches the prevision of bankruptcy literature reporting a positive relationship between firm's size and chances for successful reorganization (e.g. Moulton and Thomas, 1993; Chatterjee et al., 1996). Also, similarly to the French dataset of Blazy et al. (2013; 2014), most of our sampled firms have a limited liability form. Yet, respect these two works, firms in our dataset are younger and smaller. Indeed, Blazy et al. (2014) find an average age of 15 and 17 years for liquidated and reorganized firms, respectively, and Blazy et al. (2013) report 12 and 26 as mean number of employees. We can explain this considering that the time frame of our study (differently from theirs) includes the years that followed the 2009 European crisis, that heavily affected smaller and younger businesses. The 10.2% of restructured firms are part of a larger industrial group (2.3% for liquidated firms), suggesting that being part of a larger industrial group may be beneficial for easing the restructuring process, for instance through financial and operational support provided by the parent company. Concerning the sector of activity, we have a prevalence of firms operating in the services (almost 53%), reflecting Paris as the location of our investigation, where the service sector is more present compared to the country level (the 2005 percentage of French businesses operating in services is 37.8% according to Blazy et al. (2011)); the percentages of firms in our dataset operating in the trade and in the manufacturing sectors (around 20% and 27%, respectively) are similar to those reported in other studies on French insolvencies (Blazy et al., 2011; 2013).

[Insert *Table 2* here]

Table 3 reports some financial figures on the studied firms and their structure of claims, extracted from the bankruptcy documents that report the values at bankruptcy triggering. The overall due claims are averagely higher for firms that reorganized; this is consistent with their larger mean size (as denoted by the figures on the total assets presented in *Table 2*). The coverage ratio (total assets out of total due claims) is also logically higher on average for these firms, suggesting a better financial health compared to their liquidated counterparts. Moreover, reorganized firms show a larger portion of liquid assets (cash and inventory), thus confirming a better capacity to pay off

their claims. Looking at the structure of the claims, firms that successfully reorganized own a larger portion of their debt to secured creditors compared to liquidated firms, that instead report on average a larger portion of claims owned to the employees, to the State and to the junior creditors. The works of Gilson et al. (1990), Franks and Sussman (2005) and James (1996) discuss as chances for reorganization increase when a larger portion of debt is owned to the banks (that usually detain secured claims), as they tend to engage in the rescue process of insolvent firms. Our last result appears in line with such argument.

[Insert *Table 3* here]

The court-appointed firm's administrator, in her/his audit on the bankrupted company (*bilan économique et social*), reports the causes that induced the default and ultimately led the firm to bankruptcy. A series of bankruptcy works demonstrate that the causes of firm's default impact on debt restructuring (Collett et al., 2014; Blazy et al., 2011; 2013; 2017). We thus extracted from the bankruptcy documents for every firm its causes of default. At this aim we relied on the classification proposed by Blazy et al. (2011, 2013) who, as for our case, rest on the manual analysis of bankruptcy papers, and we identify six main causes: *Production*, *Finance*, *Strategy-Management*, *Accident*, *Outlets*, *External environment*. Each cause is composed by more items, and the definition of each cause with the complete classification is presented in *Table A1* in the *Appendix*. *Table 4* reports the causes of default for the studied firms. Reorganized firms report a higher occurrence of financial causes of default, that is, issues directly impacting on the lack of financial resources (e.g. lack of equity, loan refusal). We suggest that when the business is economically sound and the causes of default relate to a lack of liquidity, their resolution may permit to turnaround the firm more easily, given its still viable business. This argument is in line with the assertion of Denis and Rodgers (2007) who suggest that high leverage (i.e. a financial cause of default) leads firms to go bankrupt in a shorter time even if still economically viable. Collett et al. (2014) report that an adverse microeconomic environment and a decline in the outlet market constitute a major cause for businesses' unsuccessful turnarounds. In line with their results, our sampled firms that faced liquidation report higher frequencies for causes of default related to such exogenous factors, *Outlets* and *External environment*, suggesting that these firms were more fragile to external shocks compared to firms that successfully reorganized. Still, also reorganized firms report notable frequencies of *Outlets* and *External environment* causes of default. This can be related to the studied timeframe that sees the effects of the 2009 European financial and economic

crisis. This underscores the relevance of controlling for such causes of default and for the macroeconomic trend in our econometrical analysis.

[Insert *Table 4* here]

For obtaining a more complete picture on the firms' causes of default, we performed Hierarchical Cluster Analysis (HCA) whose output is the dendrogram reported in *Figure 1*.[54] The dendrogram shows how the different items composing the six causes of default are connected (for more recurrent items). The shorter the two segments uniting two items/clusters, and the more the two tend to be linked. For instance, the segments that group "*Excessive personnel expenses*" and "*Excessive operating costs (raw materials, suppliers...)*" are the shortest, indicating that these two voices (items) are the ones grouping the most closely. Bankruptcy documents reporting one often report the other too, signalling these two problematics are frequently connected, which appears reasonable in the mentioned case. Two other voices grouping closely are "*Increase of the competition*" and "*Decrease in the demand*" (firms suffering from an increase in the competition often experience also a decrease in the demand in terms of lower sales), as well as "*Overinvestment*" and "*Failure of important projects (partnerships, investments, reorganizations)*" (firms investing heavily in projects that latterly fail may face serious risks of default). We can repeat this "exercise" for all the pairs and for the larger clusters that are grouped in turn; the grouping stops when one main cluster remains, yet it is up to the observer to choose the threshold for "cutting" the tree remaining with the desired number of clusters. In *Figure 1* we "cut" the tree remaining with six clusters (identified with the six colours), each one including items that tend to be connected. For instance, if we look at the second cluster in blue, we may suspect that a recurrent situation for the firms in our dataset was an increase in the competition that induced lower sales; partners then argued on the right strategy to follow (or blamed each other, for instance), making them to refuse the ignition of new necessary capital, finally inducing the firm to default. Of course, a deeper analysis of the causes of default is out of the scope of this paper, and ours is just a cursory interpretation, as more refined analyses are needed to be more conclusive in this respect. Yet, we believe a brief investigation of the causes of default is anyway interesting to obtain a more comprehensive picture of the default issue for the firms object of our study. Such analysis suggests that default may have a constricted origin that, expanding, induces a series of consequences that in

[54] We used Sørensen-Dice coefficient and Ward's minimum variance aggregation method. The Sørensen-Dice coefficient is a statistic that measures the similarity between two sets of data, and it was developed independently by Sørensen (1948) and by Dice (1945). Ward's minimum variance aggregation method is a diffused criterion adopted in HCA following which the choice of the pair of clusters to merge at each step is the one minimizing the total within-cluster variance, and it was presented by Ward (1963).

chain lead to other complications, culminating with firm's insolvency and, ultimately, with bankruptcy under court's administration. We then proceed in examining the features of the studied bankruptcy proceedings and of the judges that administered them.

[Insert *Figure 1* here]

Descriptive statistics on the proceedings

In the reweighted sample the numbers for the three types of procedure reflect the structure of the Parisian insolvency proceedings (OCED, 2019), with approximately 88% being *Liquidation judiciaire*, 11% *Redressement judiciaire* and almost 1% *Sauvegard*. *Table 5* reports some descriptive statistics on the studied proceedings, starting with the (discounted) debt recovery rate. The average recovery rate granted to the creditors by firms that successfully reorganized appears much higher (0.90) respect that for liquidated firms (0.17). The higher average recovery rate for reorganized firms is not surprising, given that these firms tend to show a better financial health, as their higher mean *Coverage ratio* suggests (see *Table 3*). *Graphs A1*, *A2*, *A3* in the Appendix report the estimated density functions of the debt recovery rate for the total reweighted sample, the liquidations and the reorganizations, respectively, that confirm the shift toward higher recovery rates granted by reorganized firms. We can compare our figures with those reported by Davydenko and Franks (2008) and by Blazy et al. (2013) for French insolvencies. As for our case, both studies report higher recovery rates for reorganization cases than for liquidation cases. Davydenko and Franks' (2008) study focuses on the bank's recovery rate, and they found an average value of 0.40 for direct liquidation cases and of 0.74 for going concern cases; Blazy et al. (2013) report a total mean recovery rate of 0.20 and of 0.46 for firms entering LJ and RJ, respectively. Respect the values of Davydenko and Franks (2008), our mean 0.90 for reorganization cases is not far from their 0.74, yet they found a sensibly higher mean recovery rate for liquidations. We explain this considering that their recovery rate refers to bank debt, which usually is secured and thus benefits from a higher ranking in liquidation following APR than unsecured debt which is included in our computations. Respect the figures of Blazy et al. (2013), our recovery rate for liquidation cases is similar to theirs, yet we find a higher mean recovery rate for reorganization cases. Indeed, our reorganized firms seem in better financial health compared to theirs, as confirmed by the higher average coverage ratio that we obtain for this group (1.8 compared to the 0.67 of Blazy et al. (2013)). We can explain this considering the time window of our sample, which as discussed includes the years of the 2009 European crisis, where many firms faced liquidity shortage and thus entered bankruptcy despite a still economically viable business.

The average duration of the proceedings is higher for firms that were reorganized, as also Blazy et al. (2013) report (the reorganization process includes indeed also the phase of the implementation of the restructuring plan, which may last several years), with an average duration of 6.4 years compared to 3.7 years for liquidation cases. Reorganization cases show also higher direct bankruptcy costs on average (40'100 € against 23'800 € for liquidation cases), which seems reasonable given their longer duration. Both reorganization and liquidation proceedings show to involve a similar number of judges in the panel, around 5 on average.

[Insert *Table 5* here]

Descriptive statistics on the judges

Table 6 presents descriptive statistics for the 61 judges that supervised the 223 sampled proceedings. The average year of nomination is 2001, at a mean age of 57. Their mean age in the period 2006-2012 was between 61 and 67, being 1945 the average year of birth. This aligns with the average age of 61 reported by Colcombet and Montebourg (1998) for the judges of the Paris commercial court. Women appear seriously underrepresented, being the 11.5% of the group.

Looking at judges' skills, we address both the specific skills accumulated during the professional career and the general skills acquired during their academic education. Concerning the first, specific skills in management stand out. We can relate this to the high numbers of occupations in managerial as well as in executive positions along their professional career, as we highlight a few rows below. Indeed, this is in line with the belongingness of lay judges to the business community. Yet, specific skills in law and in finance-accounting are quite diffused too, with approximately half of the judges showing competences in these matters. More than 96% of the judges display also specific skills in other areas, confirming the high heterogeneity among lay judges' backgrounds. We find such heterogeneity also looking at their educational path. Indeed, university tracks in the fields of law, finance-economics, or management as well as in other areas are all reported between the 37% and the 46% of the cases. This also indicates that some judges developed educational paths crossing two (or more) of these subjects.

Overall, the judges show a consistent level of education. The highest average diploma coincides with the mid-term of a master degree (4.1 years post-BAC[55]). This appears elevated in relation with judges' age groups (reminding the less diffused access to tertiary education of former generations); the years of cumulated studies post-BAC are equal to 7.2, on average.

[55] BAC stands for *baccalauréat*, which is the French national academic qualification that students achieve at the completion of their secondary cycle of education.

Concerning professional experiences, the judges had 3.9 diverse jobs, on average, before their nomination (we exclude minor professional experiences as internships). As anticipated, a high fraction of judges shows to have revested roles as manager or executive in for-profit organizations, with a minority but still consistent share of positions also as employee as well as in non-profit organizations (often the same judge have occupied diverse positions along the professional career). Again, we highlight the heterogeneity characterizing lay judges' profiles as emerging from professional experiences, with more than 86% of them reporting also other typologies of professional experiences (as consultant, associate, board member, for instance).

Following such rich professional careers, we also traced the size of their digital professional networking (LinkedIn connections) and the mandates held in the various organizations. The lay judges have 109.3 LinkedIn connections, on average; yet, the high standard deviation suggests notable divergences in this respect among them. We find a high standard deviation also looking at the number of mandates, with a mean of 4.3 mandates detained by the judges in diverse organizations.

Overall, the descriptive statistics highlight the high heterogeneity among the profiles of the judges under observation, as it is expected from lay judges. This indicates that bankruptcy affairs are not homogenously supervised in terms of judges' backgrounds. Considering the wide judicial discretion granted to French lay judges, and the fact that individual characteristics can affect decision-making (e.g. Hambrick and Mason, 1984; Wiersema and Bantel, 1992; Kauer et al., 2007), this suggests that the financial performance of bankruptcy (i.e. the recovery rates) may vary, *ceteris paribus*, depending on the profiles of the judges appointed on the case. Such a human factor can represent an ulterior source of uncertainty for the creditors regarding the bankruptcy outcome. Understanding how the judges' individual characteristics affect debt recoveries reveals thus crucial, as it provides claimholders an ulterior element to assess the bankruptcy outcome they shall expect from a case. This, in turn, may influence their decision-making in bankruptcy. The next section will thus test how these diverse judges' individual characteristics impact on the debt recovery rate.

[Insert *Table 6* here]

5.2 Econometric implementation and results

To test for our hypotheses, we run OLS regressions. We split between firm's variables and judges' variables. Concerning firm's variables, as anticipated we follow abovementioned literature in controlling for firm's (accounting and) financial figures, causes of default and structure of claims, as well as in controlling for the outcome of the proceeding (firm's continuation vs. liquidation) and

for the macroeconomic trend. Concerning judges' variables[56], a group of variables refers to the judges' specific skills (*H1A*, *H1B*) and to the judges' general skills (*H1C*), a group to their professional experiences (*H2A*, *H2B*, *H2C*) and two variables capture their involvement in the business community in terms of size of their digital professional network (*H3A*) and number of mandates in the different organizations (*H3B* and *H3C*); we also control for the fraction of women in the panel of judges administering the proceeding.

Table 7 reports results from OLS regression. The model is globally significant at 1% level (Fisher stat.). The Adj. R^2 is satisfactory reaching almost 55%, and all the variables show acceptable VIF scores, with the maximum VIF equal to 4.36, thus all lying below 10, the commonly accepted threshold value signalling potential problems of multicollinearity (Neter et al., 1996; Chatterjee and Hadi, 2006). This suggests that multicollinearity is not likely to disturb our results.

[Insert *Table 7* here]

Firm's factors mostly affect the recovery rate in the way suggested by previous literature. Reorganization outcomes positively affect the recovery rate. This confirms the findings of Blazy et al. (2013), sustaining that firms succeeding in in-court restructuring are also able to provide creditors with higher debt recovery rates. The positive and significant relationship between the coverage ratio and the recovery rate supports the idea that better financial conditions should facilitate debt repayment (which is quite straightforward, considering that the coverage ratio here accounts for the fraction of firm's assets over its total claims). Differently, a larger fraction of intangible assets negatively affects the recovery rate, in line with the potentially lower recovery value of intangibles (an argument previously exposed by Gilson et al. (1990)). Also, the fractions of inventories and of receivables appear negatively related to the recovery rate. This seems reasonable considering that these are less liquid and/or more specific items than cash or other short-term securities that ease debt repayment. We speculate that this may hold even more when the business insolvency happens during a large sectorial downturn (which our data on the causes of default as well as our time frame on the years of the 2009 crisis suggest being a frequent condition for our sampled firms), given that the sectorial illiquidity may increase the difficulty for the firm to convert inventories and receivables in cash. In this respect, the macroeconomic trend (GDP growth rate) is indeed positively related to the recovery rate, remarking as positive macroeconomic conditions

[56] As described in Section 4.2, the judges' variables are aggregated at the panel level (i.e. the panel of judges supervising the bankruptcy affair). This allows to consider the overall features and skills of the panel. As the judges aggregate in the panels in different combinations, each case is administered by a distinct and unique panel (so preserving the independence of the observations).

favour debt restructuring (as previously envisaged by Denis and Rodgers (2007) and Collett et al. (2014)).

The structure of claims does not show an impact on the recovery rate. This appears coherent with the provisions of the French in-court procedures where judicial power is maximized and creditors' power is contained (Davydenko and Franks, 2008). Such isolation of the firm from creditors' pressures can thus minimize the impact of creditors' influence on the amount of the recovery rates.

Turning now toward judges' variables, we assess if econometrical results validate our hypotheses. The first set of hypotheses looks at the judges' specific skills. *H1A* proposes a positive relationship between judges' specific financial-accounting skills and the recovery rate; the coefficient of *Spec. skills – Finance-Accounting* is positive and significant, thus validating *H1A*. *H1B* poses a negative relationship between specific law skills and the recovery rate; the coefficient of *Spec. skills – Law* is negative and significant at 1% level. We can thus confirm *H1B*. *H1C* adduces a positive relationship between judges' general management skills and the recovery rate. The coefficient of *Gen. skills (diploma) – Management* is negative and significant still at 1% level, validating *H1C*. Overall thus, econometric findings validate our first hypothesis. Judges with specific financial-accounting skills tend to favour judicial decisions that, *ceteris paribus*, lead to increase the recovery rates (for example, via decisions effectively preserving the value of the debtor's assets). Differently, judges with specific law skills appear more oriented toward solutions that postpone claims' repayment to firm's recovery and employment's safeguard (as it follows from the priorities of the French bankruptcy code), impacting negatively on the recovery rates. Moreover, judges' general management skills (i.e. those obtained throughout their academic education) appear useful for an effective and efficient administration of the proceeding, proving beneficial for the recovery rates.

We observe that judges' general skills in economics and finance have a negative influence on the recovery rate.[57] At a first sight, this may appear a contradiction with respect to the positive effects of finance-accounting specific skills onto the recovery rate. Yet, a careful reasoning can reveal as these findings are indeed complementary. Indeed, general economics-finance skills are acquired during the university education. Several of the studied economics-finance subjects in university tracks deal with a fair distribution of resources among several parties (as for welfare economics, public economics, microfinance, for instance). An education background in such matters can lead judges to search for settlements that may represent a fair compromise for the

[57] We recall that, as described in footnote 51, the specific financial-accounting skills do not directly comprise the economics skills that are instead accounted for in the general economics-finance skills; the two types of skills thus are not perfectly aligned so that divergences in their effect on the recovery rate are indeed possible.

diverse firm's stakeholders, thus avoiding the maximization of the interests of some (e.g. the creditors), with negative effects onto the creditors' recovery rates.

The second group of hypotheses looks at judges' professional experiences. *H2A* poses a positive relationship between judges' professional experiences in for-profit organizations and the recovery rate. *Job - For-profit - Manager*, *Job - For-profit - Executive*, *Job - For-profit - Employee* capture three different roles within for-profit organizations. All show positive and significant coefficients, thus validating *H2A*. Vice versa, *Job - Non-Profit* has a negative and significant coefficient, providing support to *H2B*, that predicts a negative relation between the judges' professional experiences in non-profit organizations and the recovery rates. Overall, these findings suggest that judges' professional experiences shape the way they supervise the proceeding, especially regarding the financial function of bankruptcy, i.e. the ability to generate recovery value from financial distress. Judges that grew their career in for-profit organizations might be more familiarized with value maximization, leading them to undertake decisions that preserve the financial stakes of bankruptcy, thus spurring debt recoveries; differently, judges that served in non-profit organizations might propend toward the social stakes of bankruptcy, thus prioritizing business' preservation and employment's safeguard with a negative effect on the recovery of debt.

H2C instead poses a positive relationship between judges' experiences in firms that went bankrupt and the recovery rate. The coefficient for *Job - Bankrupted firm*, the variable used to test for this hypothesis, is positive and significant (at 10% level), thus supporting *H2C*. Judges with experiences in firms that went bankrupt have a deeper knowledge of the bankruptcy process also from the debtor's perspective; this can increase the quality of their supervision, with beneficial effects for creditors' repayment. This may result, for instance, in the approval of adequate restructuring measures or in faster proceedings that prevent from assets' value deterioration. This aligns with Iverson et al.'s (2020) findings of a positive relationship between judges' familiarity with bankruptcy law and both cases' duration and recovery rates. Moreover, experiences in bankrupted firms help to understand that the repayment of creditors is a necessary condition to support firm's reorganization. Indeed, several studies highlight the crucial role of creditors for successful reorganization. The work of Blazy et al. (2014) suggests that chances for informal renegotiation increase when the creditors' stakes in the insolvent firm are higher. The works of James (1996), Gilson et al. (1990), Franks and Sussman (2005), Couwenberg and de Jong (2006) discuss the critical function of banks for successful debt restructuring. To offer creditors higher recovery rates under reorganization induces them to commit in the reorganization process, increasing chances for successful debt restructuring that ease debt repayment.

The third set of hypotheses focuses on judges' involvement in the business community, an intrinsic feature of lay justice. *H3A* poses a positive relationship between the size of judges' digital professional network and the recovery rate. The coefficient of *Digital professional network (LinkedIn connections)* is positive and significant at 1% level, thus supporting *H3A*. A judge who is interactive with her/his professional network will enlarge the heterogeneity of her/his knowledge and can more easily benefit from professional consulting when needed. This can have beneficial effects on the quality of the judge's administration over bankruptcy litigations, impacting positively on the recovery rates.

Still, the proximity of lay judges to the business world has been a topic of controversy regarding the pros and cons that this may have on their administration of bankruptcy cases. Among the first, a better knowledge of business organizations, stronger ties with professionals that could provide worthy assistance in complex cases; among the second, the risk of some neutrality biases (for instance, being overly permissive with the insolvent firm), and the risk of work overload. The testing of the alternative hypotheses *H3B* and *H3C* permits to individuate the prevailing effect, focusing on the judges' number of mandates in the diverse organizations as a proxy for their proximity to the business sector. The coefficient of *Mandates* is negative and significant at 1% level, validating *H3C*. Findings thus suggest that, in our context, the negative effects on recovery rates prevail. That is, when there is an excessive proximity of the judges to the business community, the quality of their administration over bankruptcy cases may decrease (their deliberation may be biased somehow) and work overload may arise, decreasing their efficiency in the administration of bankruptcy litigations, with a negative effect on debt recoveries.

Another noteworthy finding relates with the negative and highly significant impact on the recovery rate of the fraction of women in the panel of judges. Corporate governance literature proved the beneficial effects of gender diversity in governance boards. Carter et al. (2003) empirically demonstrate the existence of a significant positive relationship between the fraction of women in the board and the value of the firm. They argue that diversity enhances creativity and innovation and leads to more effective problem-solving, thanks to a higher variety of perspectives that are brough to the table and analysed. They write as "the result of diversity at the top is a better understanding of the complexities of the environment and more astute decisions" (p. 36), concluding that diversity permits to better align to the diverse sensitivities of the external actors, conducing to more effective relationships with the firm's outside. Similar arguments are discussed by Konrad et al. (2008), who pose that women's presence in the board helps to identify mutually satisfactory compromises for solving delicate issues. The presence of conflicting interests is an intrinsic feature of bankruptcy disputes, where a diversity of claimholders is called to split a firm's

value that is insufficient for repaying all the claims. We propose that the mentioned beneficial effects of gender diversity in team decision making apply as well within the panel of judges administering the bankruptcy proceeding.[58] Indeed, in the delicate balance between the safeguard of business and employment and the recovery of debt, for the French context here studied, panels of judges showing higher gender diversity may encounter compelling solutions to respect the priorities of the French code. This leads to the safeguard of the business and its job places firstly, and secondly to the recovery of debt, with a negative effect on the recovery rate. This interpretation appears confirmed by the results of Blazy and Esquerre (2021), who report a positive relationship between gender diversity in French bankruptcy courts and chances for successful firm's reorganization.

Overall, thus, to our main question on who matters the most between the firm and the judges, the findings reveal that both the features of the firm and of the judges supervising the case significantly influence the creditors' recovery rates and thus the financial outcome of bankruptcy. The next section will present the robustness tests implemented to acknowledge the validity of our results.

5.3 Robustness analysis

We check the validity of our findings in two main ways. Firstly, our OLS estimates may be subject to some endogeneity bias. Indeed, the dummy variable "*Reorganization outcome*" is a decision variable linked to the judges' decision to engage and validate the firm's restructuring plan that also reports the debt recovery rates. As such, the decision to allow for firm's continuation and the approbation of recovery rates might be influenced at the same time by some unobserved variable. Blazy et al. (2013; 2017) discuss that endogeneity may emerge between the reorganization decision and the debt recovery rate. They propose to address regression based on Heckman's methodology (Heckman, 1979; Heckman and Robb, 1986) to verify if endogeneity is affecting our same factors of interest (the reorganization outcome and the recovery rate). We follow such approach by building a system of two equations: a selection function that explains the decision to allow for business' reorganization (compared to its liquidation) and a response schedule explaining the debt recovery rate that implements a set of explanatory variables comprising the dummy *Reorganization outcome*. Briggs (2004) sustains that the selection function and the response schedule should be estimated concurrently. The following *Equation 2* describes the corresponding model:

[58] This also since lay judges, emerging from the business community, often participate in corporate boards and are thus likely to hinge on corporate governance dynamics.

$$\begin{cases} \textit{Debt recovery rate}_i = a + b\ \textit{Reorganization outcome}_i + c\ X_i + \sigma\ \varepsilon_i \\ \textit{Reorganization outcome}_i = \alpha + \beta\ Z_i + u_i > 0 \end{cases} \quad [2]$$

where *Debt recovery rate*$_i$ represents the discounted debt recovery rate for firm *i*'s proceeding; *Reorganization outcome*$_i$ refers to the bankruptcy outcome for the firm *i* (a dummy variable that equals 1 if the firm is reorganized at the end of the proceeding and 0 if liquidated); X_i and Z_i are two sets of explanatory variables with X_i a subset of Z_i; u_i and ε_i are the residuals of the selection function and of the response schedule, respectively, and are assumed to be i.i.d. in *i* with standard normal distribution; σ is the standard deviation of errors ε_i. Endogeneity implies that u_i and ε_i are correlated, as discussed by Briggs (2004). If their covariance (ρ) does not differ statistically from 0, we can reject the existence of endogeneity bias. Concerning the choice of the explanatory variables in the response schedule and in the selection function, Breen (1996) sustains that the identification of the system is "weak" if these are identical among the two. Briggs (2004) discusses that it is expected that the additional variables included in the selection function are strong predictors of the dependent variable (the reorganization choice, in our context), yet uncorrelated with the outcome of interest (the debt recovery rate for our case). Moreover, he conjectures that the choice of covariates to be included in the selection function should be theory driven. As such, only for the selection function we include, among the explanatory variables, the firm's age (*Firm's age (Ln)*, natural logarithm of the years since firm's birth till bankruptcy triggering) and its legal form (*Limited liability*, a dummy that equals 1 if the firm has limited liability and 0 otherwise), since these variables, as Blazy et al. (2013) suggest, are expected to affect the reorganization choice but not the debt recovery rate, thus assuming the role of instrumental variables.

Table 8 reports the results of the Heckman regression for the response schedule and for the selection function. We observe that the results of the response schedule confirm entirely our previous findings from OLS regression, both in terms of significance and of sign of the coefficients for the judges' variables of interest, and similarly for the control variables. Furthermore, ρ does not differ statistically from zero. We conclude that endogeneity is, therefore, unlikely to affect our results that remain thus preserved.

[Insert *Table 8* here]

The second robustness check leads to Tobit regressions. Tobit approach applies when the dependent variable is censored in some way (Fumio, 2000). Although the recovery rate lays between 0 and 100%, in some cases the effective ratio of the realized assets to claims could be

(potentially) negative as well as higher than 100%.[59] To deal with this potential issue, we implement double censored Tobit regression. *Table 9* reports the obtained results. The significance and the sign of the coefficients are again in line with those reported from OLS analysis, including for the judges' variables. As exception, the coefficient of *Job - Non-Profit*, that accounts for judges' career experiences in non-profit organizations, is still negative, in accordance with *H2B*, but not significant anymore (*p-value* equal to 0.160). In the initial OLS regression the *p-value* for this variable was slightly above the 5% significance level (0.053), and within the 5% significance level (0.035) in the Heckman regression. Overall, *H2B* is thus partly supported. The results for all the other hypotheses are confirmed in the Tobit regression as for the initial models.

We conclude that if several factors contribute to shape the debt recovery process and ultimately the recovery rates, with the firm's features surely playing an important part in this respect, also the human factor, here represented by the individual features of the judges, should be seriously taken into consideration, as regression analysis confirms the impact of judges' profiles on the creditors' recovery rates. We leave to the next section the discussion of such results.

[Insert *Table 9* here]

6. Discussion

Bankruptcy literature recognizes the capacity of the bankruptcy process to produce financial outcomes to the insolvent firm's creditors as one of its core functions (Bebchuk, 1988; White, 1989; Aghion et al., 1992; Hart, 2006). Several works indeed study the elements that impact on the financial performance of the bankruptcy process, with a few papers also recognizing the important role played by judges in this respect (Weiss, 1990; Weiss and Wruck, 1998; Evans, 2003; Blazy et al., 2011). Moreover, experimental research proved that, as every human, judges can favour intuitive reactions over careful deliberative assessments and may be affected by cognitive biases when ruling a case (Rachlinski et al., 2006; Wistrich et al., 2015; Sharfman, 2005). Positioning alongside such contributions, our work makes one step deeper, showing that a human factor is also present in bankruptcy and it relates to the very individual features of the judges administering the bankruptcy process. The econometrical analysis confirms that diverse individual features guide the lay judges' deliberative process, namely their specific skills and education, their professional

[59] For instance, some costs borne by the claimholders to follow the procedure (e.g. attorneys' fees) and a repayment delay shorter respect that scheduled on the restructuring plan may drive the recovery rates below 0 and over 100%, respectively.

experiences, their involvement in the business community in terms of digital professional networking and mandates in diverse organizations. All these factors concur in shaping the way through which they interpret and consequently administer a case, with significant effects on the financial performances of bankruptcy in terms of creditors' recoveries. Moreover, also a higher female presence in the panel of judges proved to influence the outcome of the bankruptcy process.

Our findings lead us to stress three main points. Firstly, concerning how such human component can affect creditors' decisions. Huang et al. (2019), referring to the judge's political ideology, claim that this represents an additional factor of the *ex-ante* litigation risk. They discuss as more sophisticated plaintiffs (e.g. institutional investors) incorporate information onto judges' political ideology into their decision-making process. On a similar note, our results offer elements to creditors for gauging the judge factor present in bankruptcy and thus mitigate the uncertainty that such human factor may cause concerning the performance and outcome of the bankruptcy process. This, in turn, can guide creditors' *ex-ante* decisions-making, including their lending decisions. Indeed, several papers prove that the features of a bankruptcy system impact on lending decisions, for instance inducing banks to adjust interest rates or credit supply depending on the protection bankruptcy provisions grant them (e.g. Scott and Smith, 1986; Berkowitz and White, 2004; Araujo et al., 2012; Cerqueiro et al., 2016). Our results prove as the lay judge constitutes a pivotal figure of the bankruptcy system that creditors may thus properly address.

Secondly, such human factor should be thoroughly pondered by the legislator too when evaluating how the spirit of the law shall be conveyed by the judiciary. In this respect, indeed, our findings continue the debate concerning judges' ability to totally astrain from their own beliefs and emotions during cases' supervision. Wistrich et al. (2015) report quotes from several judges publicly claiming their full rational approach when administering a case. Elena Kagan, for instance, Associate Justice of the U.S. Supreme Court, during her own Senate confirmation hearings, stated that "it's law all the way down", when asked about the possibility for judges to rely on emotions in extremely close cases.[60] Nevertheless, our results, alongside those from experimental research previously cited, seem to contradict such "absolute rationality view", suggesting that some judges' factors do affect the bankruptcy's outcome; overall, these findings align with the theory of Hambrick and Mason (1984) suggesting that past experiences partially shape the lenses through which current situations and problems are handled. Still, the detection of some judge's factors affecting the bankruptcy process becomes an opportunity to individuate those with beneficial effects on its efficiency as well as its efficacy in respecting the priorities defined by the bankruptcy code.

[60] Nomination of Elena Kagan to be an Associate Justice of the Supreme Court of the United States: hearing before the S. Comm. on the Judiciary, 111th Cong., 103, 2010. In Wistrich, A. J., Rachlinski, J. J., Guthrie, C., 2015. Heart versus head: do judges follow the law or follow their feelings? *Texas Law Review*, Vol. 93, N. 4, pp. 855-924.

Indeed, to provide judges with the needed competences (for instance trough *ad-hoc* training programmes), rending their backgrounds more homogeneous, may permit a more fitting as well as uniform administration of insolvency proceedings.

An ulterior point concerns the significant impact of a higher female presence among judges onto the bankruptcy's outcome. Several authors proved that gender diversity among the people composing the team leads to more effective problem-solving, enhancing creativity and innovation (Carter et al., 2003) and supporting in identifying mutually satisfactory compromises for resolving delicate matters (Konrad et al., 2008). We suggest that in the bankruptcy context here explored this translates in more equilibrated judicial decisions that respect the priorities of the French bankruptcy code (thus prioritizing firm's recovery and employment's safeguard to debt repayment). This interpretation aligns with the findings of Blazy and Esquerre (2021) concerning the positive effect of gender diversity in French bankruptcy courts onto chances for successful firm's reorganization. Our findings, thus, induce to suggest that a higher female presence in the panel of judges is beneficial for increasing the quality of proceedings' administration in conveying the spirit of the law.

To conclude, our analysis confirms the existence of a human component affecting bankruptcy in the context of lay justice. And where a human component is present, it becomes crucial to grasp the elements that characterize it to adequately gauge their implications.

7. Conclusion

Our research investigates how the individual features of the lay judges administering the bankruptcy process affect its financial performance in terms of creditors' recovery rates. We focus on a dataset of 223 French bankruptcy proceedings held in the Tribunal of Commerce of Paris in the period 2006-2012 and on the 61 judges that supervised them. Through the manual analysis of bankruptcy papers and the collection of information on the judges' individual profiles, our regression analysis proves the existence of judges' factors affecting the debt recovery rate. Namely, their specific and general skills, their professional experiences, their involvement in the business community in terms of digital professional networking and mandates detained in the diverse organizations. The debt recovery rate proved to significantly increase when judges possess specific financial-accounting skills and general management skills, when they had professional experiences in for-profit organizations as well as in firms that went bankrupt. Diversely, the debt recovery rate proved to significantly decrease when judges possess specific legal skills as well as when they had

professional experiences in non-profit organizations, making them more in line with the provisions of the French bankruptcy code that prioritizes the recovery of the business and the safeguard of the employment (i.e. the social stakes) to debt repayment. Also, a higher interactivity of the judges in terms of digital professional networking turned out to be beneficial to the recovery rates. We relate this to the higher chances for the judges to expand the heterogeneity of their knowledge and to benefit more easily from professional consulting when needed, with positive effects on the quality of their administration over bankruptcy litigations. Diversely, an excessive proximity of the judges to the business community in terms of number of mandates held in diverse organizations revealed detrimental for the recovery rates. We conjecture that when judges are too close to the business community their proceedings' administration may result potentially biased somehow, as well as hampered by work overload. Results also suggest that a higher presence of women in the panel of judges is beneficial for increasing the quality of proceedings' administration, as higher gender diversity may increase creativity and innovation leading the panel of supervising judges to more effective team decision making.

Our research aims at contributing to that stream of law and finance literature on bankruptcy that focuses on the role played by the court in the resolution of the debt restructuring process, probably best represented for our case by the investigations of Evans (2003), Bernstein et al. (2019) and Iverson et al. (2020). Respect previous literature, we provide an original perspective of research, going beyond the legal provisions that shape judicial discretion and digging at the individual level of the actor enforcing the law, the judge. Proving that the individual features of the lay judges affect the outcome of the bankruptcy process, we adduce that a microeconomic examination of the judiciary is necessary to thoroughly appraise the performances of a bankruptcy system.

This work, thus, highlights as the human factor characterized by the judges' individual features may constitute an additional source of uncertainty for the stakeholders involved in the bankruptcy process concerning the expected outcome of a proceeding. This may affect their decision-making both in bankruptcy as well as *ex-ante* (for instance conditioning creditors' lending decisions). Our study provides elements to gauge such human factor that thus permit to mitigate the uncertainty on the financial outcome the litigants shall expect from a case. Moreover, the identification of such judges' factors represents an opportunity for the legislator to design the bankruptcy system in a way to exploit those with beneficial effects on its performances.

Indeed, from a more pragmatical perspective, our findings can be worthy for the diverse stakeholders involved in the bankruptcy process (i.e. the firm's managers, the claimholders, the insolvency practitioners, the judges) in grasping how the very individual features of the judges

supervising a case can affect the in-court procedure. This can enhance the efficacy and efficiency of their negotiations, increasing the likeliness for successful debt restructuring. For instance, creditors may prefer to avoid such additional factor of uncertainty restructuring out-of-court. The firm's managers and the insolvency practitioners may elaborate restructuring measures with higher chances to be approved by the court. Lay judges' appreciation of the individual factors that might potentially influence their deliberation can guide them in adopting more suitable decisions in relation with the firm's actual distress.

Our results may serve bankruptcy institutions too. Indeed, these may craft *ad-hoc* training programmes to strengthen and render more uniform the competences of lay judges where necessary. Also, commercial tribunals could design some tracks for judges' specialization within the diverse types of bankruptcy (e.g. the dynamics of the bankruptcy proceeding of a small family-owned business are expected to differ compared to those of a large enterprise's case, and similarly for fully national vs. multinational organizations) to better align the profile of the supervising judges to the litigation's specificities. A gender rebalance within the tribunals seems fundamental as well; this also considering the positive effects that gender diversity may have on bankruptcy administration.

We believe our findings can be extended to all those bankruptcy systems relying in consular as well as in mixed consular justice (where the court is formed by both professional and lay judges), as well as in those bankruptcy systems providing judges with wide judicial discretion. Nonetheless, our work is not free from limitations, that indeed represent opportunities for further research. Our results may not be fully extendible to those bankruptcy contexts where the court is composed by professional judges only or where judicial discretion is limited. For instance, in the in-court procedure of different countries the decision on the adoption of the restructuring plan rests on a creditors' vote (as in the U.S., Italy, the U.K., Belgium), as such the impact of judges' individual features on the bankruptcy's outcome may be limited and more attention shall be devoted over the creditors' characteristics. Also, a key role in the bankruptcy process is played by the bankruptcy practitioners representing the debtor's and the creditors' interests, figures that our work does not address. Future research thus may investigate how the individual features of the bankruptcy practitioners and the manoeuvres they undertake in the course of the bankruptcy proceeding affect the outcome of the debt restructuring process. We hope that future works will explore these promising themes of investigation.

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List of tables and figures

Table 1: Definition of selected variables

This table reports the definition for the constructs adopted in the empirical analysis.

Variable	Definition
Debt recovery rate	Fraction of preferential, secured and junior debt (excluding direct bankruptcy costs) collected by the creditors out of the debt due them by the firm. Values are discounted using the annual average interest emission rate of French 7 years Treasury bond
Firm variables	
Reorganization outcome	Dummy variable that equals 1 if the firm is economically reorganized at the end of the bankruptcy path, whatever the engaged procedure (LJ, RJ or *Sauvegarde*), and 0 if it is liquidated.
Total Assets (Ln)	Natural logarithm of firm's total assets (market value at the triggering date of the bankruptcy procedure).
Coverage Ratio	Total assets / Total due claims (market values at triggering, bankruptcy costs included)
Receivables	Fraction of firm's receivables out of firm's total assets (market values at bankruptcy triggering)
Inventory	Fraction of firm's inventory out of firm's total assets (market values at bankruptcy triggering)
Tangible Assets	Fraction of firm's tangible assets out of firm's total assets (market values at bankruptcy triggering)
Intangible Assets	Fraction of firm's intangible assets out of firm's total assets (market values at bankruptcy triggering)
Claims to employees	Fraction of claims due to the employees out of firm's total due claims (market values at bankruptcy triggering)
Claims to State	Fraction of claims due to the State out of firm's total due claims (market values at bankruptcy triggering)
Claims to secured creditors	Fraction of claims due to the secured creditors out of firm's total due claims (market values at bankruptcy triggering)
Production	Dummy variable that equals 1 if the firm reports at least one item within *Production* causes of default, and 0 otherwise
Finance	Dummy variable that equals 1 if the firm reports at least one item within *Finance* causes of default, and 0 otherwise
Strategy-Management	Dummy variable that equals 1 if the firm reports at least one item within *Strategy-Management* causes of default, and 0 otherwise
Accident	Dummy variable that equals 1 if the firm reports at least one item within *Accident* causes of default, and 0 otherwise
Outlets	Dummy variable that equals 1 if the firm reports at least one item within *Outlets* causes of default, and 0 otherwise
External environment	Dummy variable that equals 1 if the firm reports at least one item within *External environment* causes of default, and 0 otherwise
GDP growth rate	Annual percent change of France's Gross Domestic Product
Judges' variables	
Spec. skills - Finance-Accounting	Natural logarithm of the sum of the individual dummy variables for the judges of the panel where each dummy equals 1if the judge's résumé reports professional experiences where financial-accounting skills are used, and 0 otherwise
Spec. skills - Law	Natural logarithm of the sum of the individual dummy variables for the judges of the panel where each dummy equals 1if the judge's résumé reports professional experiences where law skills are used, and 0 otherwise
Spec. skills - Management	Natural logarithm of the sum of the individual dummy variables for the judges of the panel where each dummy equals 1if the judge's résumé reports professional experiences where management skills are used, and 0 otherwise
Gen. skills (diploma) - Management	Natural logarithm of the sum of the diplomas in the management field achieved by each judge in the panel
Gen. skills (diploma) - Law	Natural logarithm of the sum of the diplomas in the law field achieved by each judge in the panel

Gen. skills (diploma) - Economics-Finance	Natural logarithm of the sum of the diplomas in the economics-finance field achieved by each judge in the panel
Job - For-profit - Manager	Natural logarithm of the sum of the number of job positions as manager in a for-profit organization during the professional career for each judge in the panel
Job - For-profit - Executive	Natural logarithm of the sum of the number of job positions as executive in a for-profit organization during the professional career for each judge in the panel
Job - For-profit - Employee	Natural logarithm of the sum of the number of job positions as employee in a for-profit organization during the professional career for each judge in the panel
Job - Non-Profit	Natural logarithm of the sum of the number of job positions in a non-profit organization during the professional career for each judge in the panel
Job - Bankrupted firm	Natural logarithm of the sum of the number of job positions in a firm that went bankrupt during the professional career for each judge in the panel
Digital professional network (LinkedIn connections)	Natural logarithm of the sum of the LinkedIn connections appearing on the LinkedIn page for each judge in the panel
Mandates	Natural logarithm of the sum of the number of mandates in distinct organizations for each judge in the panel
Women presence in the panel of judges	Natural logarithm of the number of women within the panel of judges

Table 2: Characteristics of the firms in our dataset

This table reports descriptive statistics for the firms composing our dataset. *Liquidation* refers to proceedings concluding with firm's liquidation; *Reorganization* refers to proceedings concluding with firm's reorganization.
Number of employees is the number of firm's employees at bankruptcy triggering; *Total assets* is the market value of total assets at bankruptcy triggering as reported in bankruptcy documents; *Firm's age* is the number of years from the firm's birth to bankruptcy triggering; *Legal form* is a dummy variable that equals 1 when the firm has limited liability and 0 otherwise; *Part of a group* is a dummy variable that equals 1 when the firm is part of a larger industrial group, and 0 otherwise; *Services* is a dummy variable that equals 1 when the firm operates in the services sector, and 0 otherwise; *Manufacturing* is a dummy variable that equals 1 when the firm operates in the manufacturing sector, and 0 otherwise; *Trade* is a dummy variable that equals 1 when the firm operates in the trade sector, and 0 otherwise.

	Economic output (Proceeding ending)								
	Liquidation (N = 174)			Reorganization (N = 49)			Total weighted sample (N = 223)		
Variables	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
Number of employees	5.9	3.0	9.0	7.6	4.0	9.9	4.0	2.0	5.2
Total assets (market value, K €)	329.4	134.9	657.9	5482.3	487.0	15444.3	175.5	56.9	808.8
Firm's age (years)	5.5	2.1	8.5	6.7	5.0	6.8	3.1	0.0	3.9
Legal form: Limited liability	100%			98.0%			99.9%		
Part of a group	2.3%			10.2%			2.6%		
Sector: Services	58.6%			65.3%			52.9%		
Sector: Manufacturing	23.0%			8.2%			26.9%		
Sector: Trade	18.4%			26.5%			20.3%		

Table 3: Financial and accounting figures and structure of claims for the firms of our dataset

This table reports descriptive statistics on the financial and accounting figures and structure of claims for the firms in our dataset. Data are extracted from bankruptcy documents and represent market values at bankruptcy triggering. *Liquidation* refers to proceedings concluding with firm's liquidation; *Reorganization* refers to proceedings concluding with firm's reorganization.
Due claims is the total amount of claims due by the firm (net of bankruptcy costs); *Coverage ratio* is the ratio between the firm's total assets and the total due claims (bankruptcy costs included); *Cash* is the total amount of firm's cash in percentage of its total assets; *Inventory* is the total amount of firm's inventories in percentage of its total assets; *Receivables* is the total amount of firm's receivables in percentage of its total assets; *Tangibles* is the total amount of firm's tangibles in percentage of its total assets; *Intangibles* is the total amount of firm's intangibles in percentage of its total assets; *Claims to employees* is the total amount of firm's claims due to the employees in percentage of firm's total claims; *Claims to the State* is the total amount of firm's claims due to the State in percentage of firm's total claims; *Junior claims* is the total amount of firm's claims due to junior creditors in percentage of firm's total claims; *Secured claims* is the total amount of firm's claims due to secured creditors in percentage of firm's total claims.

	Economic output (Proceeding ending)								
	Liquidation (N = 174)			Reorganization (N = 49)			Total weighted sample (N = 223)		
Variables	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
Due claims (net of bankruptcy costs, K €)	556.2	326.4	785.2	4580.7	279.1	13935.4	376.4	230.6	748.0
Coverage ratio	0.6	0.4	0.5	1.8	1.3	1.5	0.4	0.2	0.3
Cash (% of tot. assets)	6.8%	0.2%	14.1%	16.5%	3.0%	28.2%	5.6%	0	8.1%
Inventory (% of tot. assets)	7.7%	0.0%	17.9%	10.6%	0.0%	19.9%	8.0%	0.0%	12.3%
Receivables (% of tot. assets)	25.7%	8.6%	35.8%	18.1%	8.5%	24.2%	28.1%	8.5%	21.0%
Tangibles ((% of tot. assets)	15.7%	4.0%	23.6%	11.5%	2.6%	16.6%	18.1%	4.0%	15.6%
Intangibles (% of tot. assets)	19.6%	0.0%	34.7%	18.5%	0.0%	29.9%	14.7%	0.0%	17.2%
Claims' structure									
Claims to employees (% of total claims)	7.8%	3.6%	11.3%	3.5%	0.0%	10.6%	9.1%	4.2%	7.7%
Claims to the State (% of total claims)	30.0%	20.4%	27.5%	26.7%	15.1%	30.4%	31.6%	20.0%	18.7%
Junior claims (% of total claims)	43.3%	41.0%	29.4%	40.3%	35.7%	33.1%	44.2%	41.0%	18.6%
Secured claims (% of total claims)	13.6%	0.8%	22.9%	28.2%	0.3%	38.1%	13.1%	0.0%	14.3%

Table 4: Repartition of the causes of firm's default as extracted from legal files

This table reports the frequencies of the causes of default for the firms in our dataset. The sums exceed 100% as firms may suffer from more causes of default. *Liquidation* refers to proceedings concluding with firm's liquidation; *Reorganization* refers to proceedings concluding with firm's reorganization.
Production is a dummy variable that equals 1 if the firm reports at least one item within production causes of default, and 0 otherwise; *Finance* is a dummy variable that equals 1 if the firm reports at least one item within finance causes of default, and 0 otherwise; *Strategy-Management* is a dummy variable that equals 1 if the firm reports at least one item within strategy and management causes of default, and 0 otherwise; *Accident* is a dummy variable that equals 1 if the firm reports at least one item within accident causes of default, and 0 otherwise; *Outlets* is a dummy variable that equals 1 if the firm reports at least one item within outlets causes of default, and 0 otherwise; *External environment* is a dummy variable that equals 1 if the firm reports at least one item within external environment causes of default, and 0 otherwise.

Causes of default	Economic output (Proceeding ending)		
	Liquidation (N = 174)	Reorganization (N = 49)	Total weighted sample (N = 223)
Production	20.1%	20.4%	15.9%
Finance	32.2%	40.8%	37.5%
Strategy-Management	27.0%	20.4%	21.1%
Accident	30.5%	26.5%	24.4%
Outlets	63.8%	53.1%	65.1%
External environment	55.7%	49.0%	58.6%

Table 5: Characteristics of the analysed bankruptcy proceedings

This table reports descriptive statistics on the analysed bankruptcy proceedings. *Liquidation* refers to proceedings concluding with firm's liquidation; *Reorganization* refers to proceedings concluding with firm's reorganization.
Debt recovery rate is the fraction of preferential, secured and junior debt (excluding direct bankruptcy costs) collected by the creditors out of the debt due them by the firm (market values at bankruptcy triggering; values are discounted using the annual average interest emission rate of French 7 years Treasury bond); *Bankruptcy costs* is the direct legal costs paid by the firm for the attended bankruptcy proceeding; *Bankruptcy duration* is the number of years the bankruptcy proceeding lasted, from bankruptcy triggering till proceeding's conclusion (including the liquidation process (in the case of firm's liquidation) and the plan's implementation (in the case of firm's reorganization)); *Number of lay judges appointed* is the number of judges composing the panel that administered the bankruptcy proceeding.

	Economic output (Proceeding ending)					
	Liquidation (N = 174)		Reorganization (N = 49)		Total weighted sample (N = 223)	
Variables	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Debt recovery rate	0.17	0.20	0.90	0.17	0.15	0.22
Bankruptcy costs (paid, K€)	23.8	31.5	40.1	50.4	15.2	13.4
Bankruptcy duration (years, incl. liq. process or plan's implementation)	3.7	1.8	6.4	3.4	3.1	0.9
Number of lay judges appointed	5.2	1.9	4.8	1.1	4.1	0.6

Table 6: Descriptive statistics on lay judges' individual characteristics

This table reports descriptive statistics on the individual characteristics of the 61 lay judges appointed on the 223 analysed bankruptcy proceedings.
Year of birth is the judge's year of birth; *Year of nomination* is the judge's year of nomination as lay judge; *Woman* is a dummy variable that equals 1 if the judge is a woman and 0 if the judge is a man; *Spec. Skills - Management* is a dummy variable that equals 1 if the judge's résumé reports professional experiences related to management skills, and 0 otherwise; *Spec. Skills - Law* is a dummy variable that equals 1 if the judge's résumé reports professional experiences related to law skills, and 0 otherwise; *Spec. Skills - Finance-Accounting* is a dummy variable that equals 1 if the judge's résumé reports professional experiences related to finance-accounting skills, and 0 otherwise; *Spec. Skills - Other* is a dummy variable that equals 1 if the judge's résumé reports professional experiences related to other types of skills different from management, law, finance-accounting skills, and 0 otherwise; *Highest Diploma* refers to the duration of the highest diploma the judge achieved in terms of years post-BAC (BAC stands for *baccalauréat*, the French national academic qualification that students achieve at the completion of their secondary cycle of education); *Cumulated years of studies post-BAC* is the number of years of study post-BAC; *Diploma in Law* is a dummy variable that equals 1 if the judge achieved at least one university diploma in the field of law, and 0 otherwise; *Diploma in Economics-Finance* is a dummy variable that equals 1 if the judge achieved at least one university diploma in the field of economics-finance, and 0 otherwise; *Diploma in Management* is a dummy variable that equals 1 if the judge achieved at least one university diploma in the field of management, and 0 otherwise; *Diploma in other fields* is a dummy variable that equals 1 if the judge achieved at least one university diploma in a field different from law, economics-finance or management, and 0 otherwise; *Nr. of Jobs in the whole career* is the number of jobs (most notable) the judge detained along the professional career before the nomination as lay judge; *Job position: Manager - For-profit* is a dummy variable that equals 1 if the judge detained at least one job position as manager in a for-profit organization, and 0 otherwise, before the nomination as lay judge; *Job position: Executive - For-profit* is a dummy variable that equals 1 if the judge detained at least one job position as executive in a for-profit organization, and 0 otherwise, before the nomination as lay judge; *Job position: Employee - For-profit* is a dummy variable that equals 1 if the judge detained at least one job position as employee in a for-profit organization, and 0 otherwise, before the nomination as lay judge; *Job position: Non-profit* is a dummy variable that equals 1 if the judge detained at least one job position in a non-profit organization, and 0 otherwise, before the nomination as lay judge; *Job position: Other* is a dummy variable that equals 1 if the judge detained at least one job position diverse than as manager, executive, employee in a for profit organization or in a non-profit organization, and 0 otherwise, before the nomination as lay judge; *Nr. of jobs in bankrupted firms* is the number of jobs the judge detained in firms that went bankrupt, before the nomination as lay judge*; Digital professional network: LinkedIn connections* is the number of LinkedIn connections appearing in the LinkedIn personal page of the judge; *Nr. mandates in the diverse organizations* is the number of mandates detained by the judge in the different organizations.

Variable	61 lay judges appointed on the 223 analysed bankruptcy proceedings		
	Average (Frequency in %)	Median	Std. Dev.
Intrinsic features			
Year of birth	1945	1944	6.4
Year of nomination	2001	2001	4.2
Woman	11.5%		
Specific Skills			
Spec. Skills - Management	75.4%		
Spec. Skills - Law	50.8%		
Spec. Skills - Finance-Accounting	49.2%		
Spec. Skills - Other	96.7%		
Education - Generic skills			
Highest Diploma – Years post-BAC	4.1	5.0	2.4
Cumulated years of studies post-BAC	7.2	6.0	5.8
Diploma in Law	45.9%		
Diploma in Economics-Finance	45.9%		
Diploma in Management	37.7%		
Diploma in other fields	45.9%		
Professional Career			
Nr. of Jobs in the whole career (most notable)	3.9	5.0	1.4
Job position: Manager - For-profit	47.5%		
Job position: Executive - For-profit	41.0%		

Job position: Employee - For-profit	16.4%		
Job position: Non-profit	18.0%		
Job position: Other	86.9%		
Nr. of jobs in bankrupted firms	0.4	0.0	0.6
Involvement in the business community			
Digital professional network: LinkedIn connections	109.3	14.0	168.9
Nr. mandates in the diverse organizations	4.3	3.0	5.0

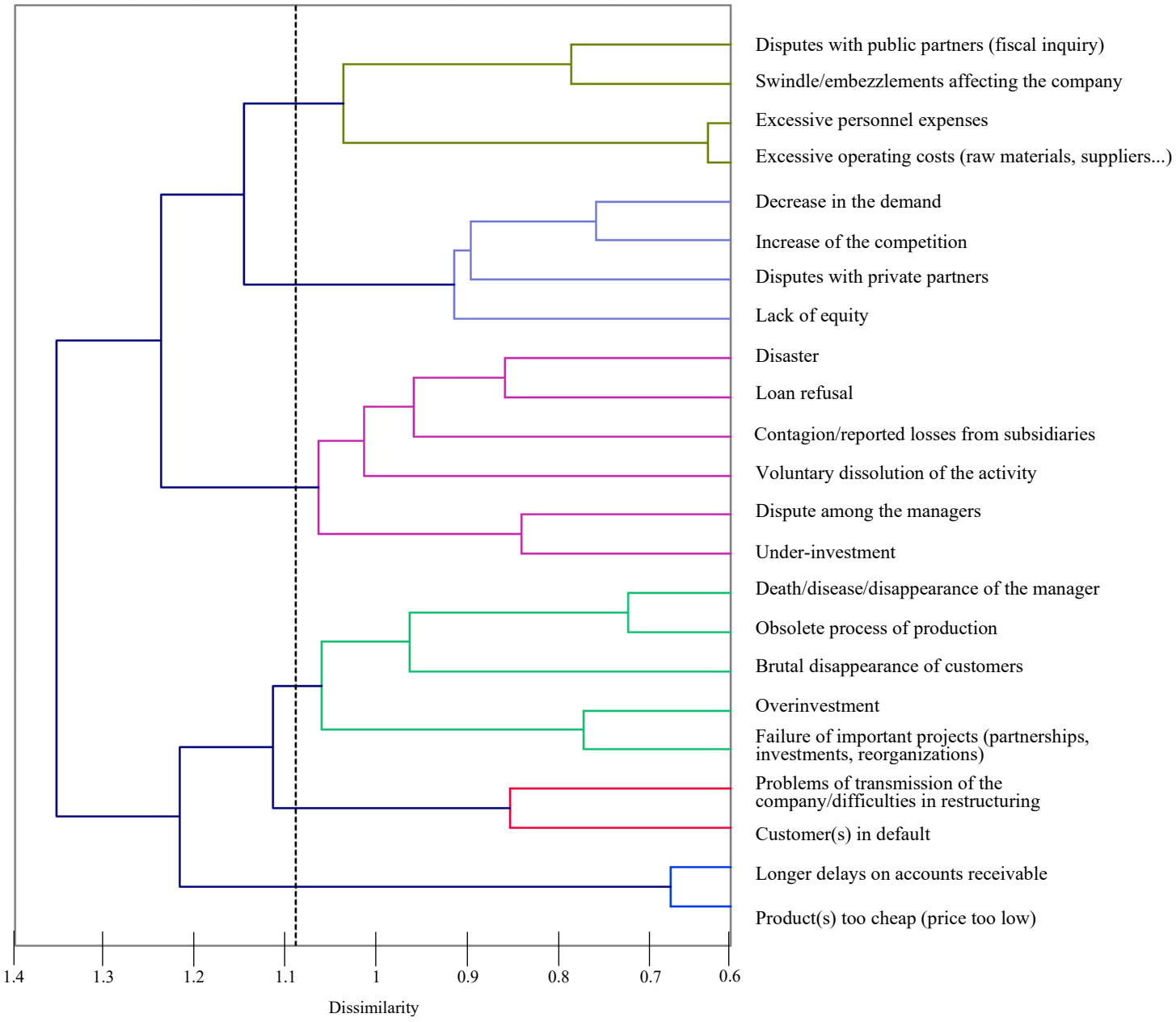


Figure 1: Dendrogram from hierarchical cluster analysis for most recurrent reasons for firms' default as reported in bankruptcy files

Table 7: Results of the OLS regression model

This table reports the results from the OLS regression model. Debt recovery rates and firm's figures represent market values at bankruptcy triggering as extracted from bankruptcy documents.

Debt recovery rate is the fraction of preferential, secured and junior debt (excluding direct bankruptcy costs) collected by the creditors out of the debt due them by the firm (values are discounted using the annual average interest emission rate of French 7 years Treasury bond); *Spec. skills - Finance-Accounting* is the natural logarithm of the sum of the individual dummy variables for the judges of the panel where each dummy equals 1 if the judge's résumé reports professional experiences where financial-accounting skills are used, and 0 otherwise; *Spec. skills - Law* is the natural logarithm of the sum of the individual dummy variables for the judges of the panel where each dummy equals 1 if the judge's résumé reports professional experiences where law skills are used, and 0 otherwise; *Spec. skills - Management* is the natural logarithm of the sum of the individual dummy variables for the judges of the panel where each dummy equals 1 if the judge's résumé reports professional experiences where management skills are used, and 0 otherwise; *Gen. skills (diploma) - Management* is the natural logarithm of the sum of the diplomas in the management field achieved by all judges in the panel; *Gen. skills (diploma) - Law* is the natural logarithm of the sum of the diplomas in the law field achieved by all judges in the panel; *Gen. skills (diploma) - Economics-Finance* is the natural logarithm of the sum of the diplomas in the economics-finance field achieved by all judges in the panel; *Job - For-profit - Manager* is the natural logarithm of the sum of the number of job positions as manager in a for-profit organization during the professional career for all judges in the panel; *Job - For-profit - Executive* is the natural logarithm of the sum of the number of job positions as executive in a for-profit organization during the professional career for all judges in the panel; *Job - For-profit - Employee* is the natural logarithm of the sum of the number of job positions as employee in a for-profit organization during the professional career for all judges in the panel; *Job - Non-Profit* is the natural logarithm of the sum of the number of job positions in a non-profit organization during the professional career for all judges in the panel; *Job - Bankrupted firm* is the natural logarithm of the sum of the number of job positions in a firm that went bankrupt during the professional career for all judges in the panel; *Digital professional network (LinkedIn connections)* is the natural logarithm of the sum of the LinkedIn connections appearing on the LinkedIn page for all judges in the panel; *Mandates* is the natural logarithm of the sum of the number of mandates in distinct organizations for all judges in the panel; *Women presence in the panel of judges* is the natural logarithm of the number of women within the panel of judges; *Reorganization outcome* is a dummy variable that equals 1 if the firm is economically reorganized at the end of the bankruptcy path (whatever the engaged procedure) and 0 if it is liquidated; *Total Assets (Ln)* is the natural logarithm of firm's total assets; *Coverage Ratio* is the ratio between the firm's total assets and the total due claims (bankruptcy costs included); *Receivables* is the fraction of firm's receivables out of firm's total assets; *Inventory* is the fraction of firm's inventory out of firm's total assets; *Tangible Assets* is the fraction of firm's tangible assets out of firm's total assets; *Intangible Assets* is the fraction of firm's intangible assets out of firm's total assets; *Claims to employees* is the fraction of claims due to the employees out of firm's total due claims; *Claims to State* is the fraction of claims due to the State out of firm's total due claims; *Claims to secured creditors* is the fraction of claims due to the secured creditors out of firm's total due claims; *Production* is a dummy variable that equals 1 if the firm reports at least one item within Production causes of default, and 0 otherwise; *Finance* is a dummy variable that equals 1 if the firm reports at least one item within Finance causes of default, and 0 otherwise; *Strategy-Management* is a dummy variable that equals 1 if the firm reports at least one item within Strategy-Management causes of default, and 0 otherwise; *Accident* is a dummy variable that equals 1 if the firm reports at least one item within Accident causes of default, and 0 otherwise; *Outlets* is a dummy variable that equals 1 if the firm reports at least one item within Outlets causes of default, and 0 otherwise; *External environment* is a dummy variable that equals 1 if the firm reports at least one item within External environment causes of default, and 0 otherwise; *GDP growth rate* is the annual percent change of France's Gross Domestic Product.

	Dependent variable: Debt recovery rate	
Variable	Parameter Estimate	Pr. > |t|
Intercept	0.0231	0.744
Judge variables		
H1A		
Spec. skills - Finance-Accounting	0.1193**	0.013
H1B		
Spec. skills - Law	-0.0852***	0.009
Spec. skills - Management	0.0243	0.649
H1C		
Gen. skills (diploma) - Management	0.0972***	0.004
Gen. skills (diploma) - Law	0.0249	0.587
Gen. skills (diploma) - Economics-Finance	-0.1903***	0.001
H2A		
Job - For-profit - Manager	0.0691*	0.078
Job - For-profit - Executive	0.1597***	<.0001
Job - For-profit - Employee	0.0866**	0.022
H2B		
Job - Non-Profit	-0.0772*	0.053
H2C		
Job - Bankrupted firm	0.0560*	0.092
H3A		
Digital professional network (LinkedIn connections)	0.0287***	0.006
H3B		
Mandates	-0.0705***	0.001
Women presence in the panel of judges	-0.1679***	0.001
Firm variables		
Reorganization outcome	0.7242***	<.0001
Total Assets (Ln)	0.0117	0.193
Coverage Ratio	0.0909***	0.002

Receivables	-0.1670***	0.001
Inventory	-0.2025***	0.003
Tangible Assets	0.0418	0.418
Intangible Assets	-0.1283**	0.025
Claims to employees	-0.1489	0.180
Claims to State	-0.0412	0.353
Claims to secured creditors	-0.0547	0.401
Production	0.0207	0.495
Finance	-0.0144	0.565
Strategy-Management	-0.0049	0.877
Accident	0.0029	0.920
Outlets	-0.0830*	0.058
External environment	0.0633	0.133
GDP growth rate	0.0152**	0.019
OLS Regression model		
F Value	9.58***	<.0001
R^2	0.609	
Adj. R^2	0.545	
No. obs.	223	
Multicollinearity analysis		
Mean VIF	2.43	
Maximum VIF	4.36	

*Statistical significance at the 10% level. **Statistical significance at the 5% level. ***Statistical significance at the 1% level.

Table 8: Results of the Heckman selection model

This table reports the results from the Heckman selection model. The *Response schedule* regresses the *Debt recovery rate* on the explanatory variables; the *Selection function* regresses the *Reorganization outcome* on the explanatory variables that include two instrumental variables. Debt recovery rates and firm's figures represent market values at bankruptcy triggering as extracted from bankruptcy documents.
Debt recovery rate is the fraction of preferential, secured and junior debt (excluding direct bankruptcy costs) collected by the creditors out of the debt due them by the firm (values are discounted using the annual average interest emission rate of French 7 years Treasury bond); *Reorganization outcome* is a dummy variable that equals 1 if the firm is economically reorganized at the end of the bankruptcy path (whatever the engaged procedure) and 0 if it is liquidated; *Spec. skills - Finance-Accounting* is the natural logarithm of the sum of the individual dummy variables for the judges of the panel where each dummy equals 1 if the judge's résumé reports professional experiences where financial-accounting skills are used, and 0 otherwise; *Spec. skills - Law* is the natural logarithm of the sum of the individual dummy variables for the judges of the panel where each dummy equals 1 if the judge's résumé reports professional experiences where law skills are used, and 0 otherwise; *Spec. skills - Management* is the natural logarithm of the sum of the individual dummy variables for the judges of the panel where each dummy equals 1 if the judge's résumé reports professional experiences where management skills are used, and 0 otherwise; *Gen. skills (diploma) - Management* is the natural logarithm of the sum of the diplomas in the management field achieved by all judges in the panel; *Gen. skills (diploma) - Law* is the natural logarithm of the sum of the diplomas in the law field achieved by all judges in the panel; *Gen. skills (diploma) - Economics-Finance* is the natural logarithm of the sum of the diplomas in the economics-finance field achieved by all judges in the panel; *Job - For-profit - Manager* is the natural logarithm of the sum of the number of job positions as manager in a for-profit organization during the professional career for all judges in the panel; *Job - For-profit - Executive* is the natural logarithm of the sum of the number of job positions as executive in a for-profit organization during the professional career for all judges in the panel; *Job - For-profit - Employee* is the natural logarithm of the sum of the number of job positions as employee in a for-profit organization during the professional career for all judges in the panel; *Job - Non-Profit* is the natural logarithm of the sum of the number of job positions in a non-profit organization during the professional career for all judges in the panel; *Job - Bankrupted firm* is the natural logarithm of the sum of the number of job positions in a firm that went bankrupt during the professional career for all judges in the panel; *Digital professional network (LinkedIn connections)* is the natural logarithm of the sum of the LinkedIn connections appearing on the LinkedIn page for all judges in the panel; *Mandates* is the natural logarithm of the sum of the number of mandates in distinct organizations for all judges in the panel; *Women presence in the panel of judges* is the natural logarithm of the number of women within the panel of judges; *Total Assets (Ln)* is the natural logarithm of firm's total assets; *Coverage Ratio* is the ratio between the firm's total assets and the total due claims (bankruptcy costs included); *Receivables* is the fraction of firm's receivables out of firm's total assets; *Inventory* is the fraction of firm's inventory out of firm's total assets; *Tangible Assets* is the fraction of firm's tangible assets out of firm's total assets; *Intangible Assets* is the fraction of firm's intangible assets out of firm's total assets; *Claims to employees* is the fraction of claims due to the employees out of firm's total due claims; *Claims to State* is the fraction of claims due to the State out of firm's total due claims; *Claims to secured creditors* is the fraction of claims due to the secured creditors out of firm's total due claims; *Production* is a dummy variable that equals 1 if the firm reports at least one item within Production causes of default, and 0 otherwise; *Finance* is a dummy variable that equals 1 if the firm reports at least one item within Finance causes of default, and 0 otherwise; *Strategy-Management* is a dummy variable that equals 1 if the firm reports at least one item within Strategy-Management causes of default, and 0 otherwise; *Accident* is a dummy variable that equals 1 if the firm reports at least one item within Accident causes of default, and 0 otherwise; *Outlets* is a dummy variable that equals 1 if the firm reports at least one item within Outlets causes of default, and 0 otherwise; *External environment* is a dummy variable that equals 1 if the firm reports at least one item within External environment causes of default, and 0 otherwise; *GDP growth rate* is the annual percent change of France's Gross Domestic Product; *Firm's age (Ln)* is the natural logarithm of the number of years from firm's birth to bankruptcy triggering; *Limited liability* is a dummy variable that equals 1 if the firm has limited liability and 0 otherwise.

	Response schedule Dependent Variable: Debt recovery rate		Selection function Dependent Variable: Reorganization outcome	
Variable	Parameter Estimate	Pr. > |t|	Parameter Estimate	Pr. > |t|
Intercept	0.0230	0.726	6.7102***	<.0001
Judge variables				
Spec. skills - Finance-Accounting	0.1193***	0.007	0.7887	0.694
Spec. skills – Law	-0.0850***	0.005	-1.8243	0.245
Spec. skills - Management	0.0271	0.583	1.5253	0.426
Gen. skills (diploma) - Management	0.0977***	0.001	0.2430	0.830
Gen. skills (diploma) - Law	0.0267	0.530	2.9910	0.271
Gen. skills (diploma) - Economics-Finance	-0.1883***	0.000	-0.3604	0.872
Job - For-profit - Manager	0.0671*	0.064	-0.3146	0.794
Job - For-profit - Executive	0.1566***	<.0001	-2.8731**	0.038
Job - For-profit - Employee	0.0870**	0.013	0.3558	0.771
Job - Non-Profit	-0.0773**	0.035	-0.0844	0.943
Job - Bankrupted firm	0.0548*	0.074	-2.1634*	0.054
Digital professional network (LinkedIn connections)	0.0282***	0.004	-0.1588	0.661
Mandates	-0.0705***	0.000	-0.0951	0.893
Women presence in the panel of judges	-0.1662***	0.000	-0.8388	0.644
Firm variables				
Reorganization outcome	0.6844***	<.0001	-	-
Total Assets (Ln)	0.0115	0.169	0.1809	0.554
Coverage Ratio	0.0961***	0.000	2.0485**	0.034
Receivables	-0.1667***	0.000	1.4422	0.977
Inventory	-0.2025***	0.001	2.0516	0.697
Tangible Assets	0.0397	0.405	-1.3113	0.444
Intangible Assets	-0.1272**	0.015	-0.6340	0.716

Claims to employees	-0.1464	0.153	-0.6176	0.886
Claims to State	-0.0401	0.328	1.5764	0.361
Claims to secured creditors	-0.0540	0.370	1.8703	0.314
Production Cause	0.0204	0.468	0.5779	0.520
Finance Cause	-0.0142	0.539	0.3063	0.765
Strategy-Management Cause	-0.0060	0.838	-0.2662	0.803
Accident Cause	0.0036	0.890	0.3542	0.708
Outlets Cause	-0.0821**	0.041	0.5630	0.619
Ext. Environment Cause	0.0623	0.109	-0.8669	0.421
GDP growth rate	0.0151**	0.012	-0.0877	0.705
Instrumental variables				
Firm's age (Ln)	-	-	0.8562**	0.030
Limited liability	-	-	-10.8172***	<.0001
Estimates of the error variance (σ)	0.1372***	<.0001	-	-
Covariance of errors - response schedule and selection function (ρ)	-	-	0.2397	0.395
Heckman model (two-equations system)				
Log likelihood	115.27			
Maximum Absolute Gradient	0.0001***			
No. obs.	223			
AIC	-96.54			
Schwarz Criterion	131.74			
Estimated R^2	0.63			

*Statistical significance at the 10% level. **Statistical significance at the 5% level. ***Statistical significance at the 1% level.

Table 9: Results of double censored Tobit regression

This table reports the results from the double censored Tobit regression model. Debt recovery rates and firm's figures represent market values at bankruptcy triggering as extracted from bankruptcy documents.

Debt recovery rate is the fraction of preferential, secured and junior debt (excluding direct bankruptcy costs) collected by the creditors out of the debt due them by the firm (values are discounted using the annual average interest emission rate of French 7 years Treasury bond); *Spec. skills - Finance-Accounting* is the natural logarithm of the sum of the individual dummy variables for the judges of the panel where each dummy equals 1 if the judge's résumé reports professional experiences where financial-accounting skills are used, and 0 otherwise; *Spec. skills - Law* is the natural logarithm of the sum of the individual dummy variables for the judges of the panel where each dummy equals 1 if the judge's résumé reports professional experiences where law skills are used, and 0 otherwise; *Spec. skills - Management* is the natural logarithm of the sum of the individual dummy variables for the judges of the panel where each dummy equals 1 if the judge's résumé reports professional experiences where management skills are used, and 0 otherwise; *Gen. skills (diploma) - Management* is the natural logarithm of the sum of the diplomas in the management field achieved by all judges in the panel; *Gen. skills (diploma) - Law* is the natural logarithm of the sum of the diplomas in the law field achieved by all judges in the panel; *Gen. skills (diploma) - Economics-Finance* is the natural logarithm of the sum of the diplomas in the economics-finance field achieved by all judges in the panel; *Job - For-profit - Manager* is the natural logarithm of the sum of the number of job positions as manager in a for-profit organization during the professional career for all judges in the panel; *Job - For-profit - Executive* is the natural logarithm of the sum of the number of job positions as executive in a for-profit organization during the professional career for all judges in the panel; *Job - For-profit - Employee* is the natural logarithm of the sum of the number of job positions as employee in a for-profit organization during the professional career for all judges in the panel; *Job - Non-Profit* is the natural logarithm of the sum of the number of job positions in a non-profit organization during the professional career for all judges in the panel; *Job - Bankrupted firm* is the natural logarithm of the sum of the number of job positions in a firm that went bankrupt during the professional career for all judges in the panel; *Digital professional network (LinkedIn connections)* is the natural logarithm of the sum of the LinkedIn connections appearing on the LinkedIn page for all judges in the panel; *Mandates* is the natural logarithm of the sum of the number of mandates in distinct organizations for all judges in the panel; *Women presence in the panel of judges* is the natural logarithm of the number of women within the panel of judges; *Reorganization outcome* is a dummy variable that equals 1 if the firm is economically reorganized at the end of the bankruptcy path (whatever the engaged procedure) and 0 if it is liquidated; *Total Assets (Ln)* is the natural logarithm of firm's total assets; *Coverage Ratio* is the ratio between the firm's total assets and the total due claims (bankruptcy costs included); *Receivables* is the fraction of firm's receivables out of firm's total assets; *Inventory* is the fraction of firm's inventory out of firm's total assets; *Tangible Assets* is the fraction of firm's tangible assets out of firm's total assets; *Intangible Assets* is the fraction of firm's intangible assets out of firm's total assets; *Claims to employees* is the fraction of claims due to the employees out of firm's total due claims; *Claims to State* is the fraction of claims due to the State out of firm's total due claims; *Claims to secured creditors* is the fraction of claims due to the secured creditors out of firm's total due claims; *Production* is a dummy variable that equals 1 if the firm reports at least one item within Production causes of default, and 0 otherwise; *Finance* is a dummy variable that equals 1 if the firm reports at least one item within Finance causes of default, and 0 otherwise; *Strategy-Management* is a dummy variable that equals 1 if the firm reports at least one item within Strategy-Management causes of default, and 0 otherwise; *Accident* is a dummy variable that equals 1 if the firm reports at least one item within Accident causes of default, and 0 otherwise; *Outlets* is a dummy variable that equals 1 if the firm reports at least one item within Outlets causes of default, and 0 otherwise; *External environment* is a dummy variable that equals 1 if the firm reports at least one item within External environment causes of default, and 0 otherwise; *GDP growth rate* is the annual percent change of France's Gross Domestic Product.

Dependent variable: Debt recovery rate

Variable	Parameter Estimate	Pr. > |t|
Intercept	-0.0303	0.691
Judge variables		
Spec. skills - Finance-Accounting	0.1075**	0.034
Spec. skills - Law	-0.0850**	0.017
Spec. skills - Management	0.0026	0.964
Gen. skills (diploma) - Management	0.0798**	0.025
Gen. skills (diploma) - Law	0.0435	0.391
Gen. skills (diploma) - Economics-Finance	-0.2153***	0.000
Job - For-profit - Manager	0.0743*	0.078
Job - For-profit - Executive	0.1800***	<.0001
Job - For-profit - Employee	0.1178***	0.003
Job - Non-Profit	-0.0591	0.160
Job - Bankrupted firm	0.0805**	0.027
Digital professional network (LinkedIn connections)	0.0262**	0.018
Mandates	-0.0723***	0.001
Women presence in the panel of judges	-0.1813***	0.001
Firm variables		
Reorganization outcome	0.7966***	<.0001
Total Assets (Ln)	0.0236**	0.018
Coverage Ratio	0.0847***	0.008
Receivables	-0.1950***	0.000

Inventory	-0.1921***	0.008
Tangible Assets	0.0507	0.356
Intangible Assets	-0.1316**	0.029
Claims to employees	-0.1179	0.324
Claims to State	-0.0627	0.200
Claims to secured creditors	-0.0524	0.446
Production Cause	0.0171	0.597
Finance Cause	-0.0124	0.642
Strategy-Management Cause	0.0334	0.336
Accident Cause	0.0116	0.704
Outlets Cause	-0.0777*	0.099
Ext. Environment Cause	0.0724	0.109
GDP growth rate	0.0151**	0.028
Estimates of the error variance (σ)	0.1545***	<.0001
Double censored Tobit regression		
Log likelihood	57.76	
Maximum Absolute Gradient	0.0006***	
No. obs.	223	
AIC	-49.52	
Schwarz Criterion	62.92	
Estimated R^2	0.70	

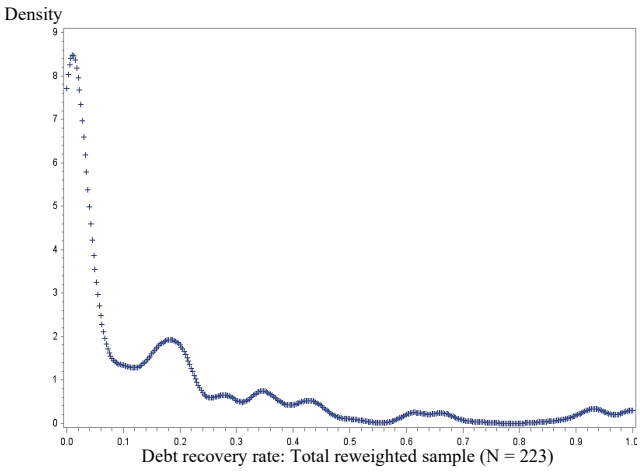
*Statistical significance at the 10% level. **Statistical significance at the 5% level. ***Statistical significance at the 1% level.

Appendix

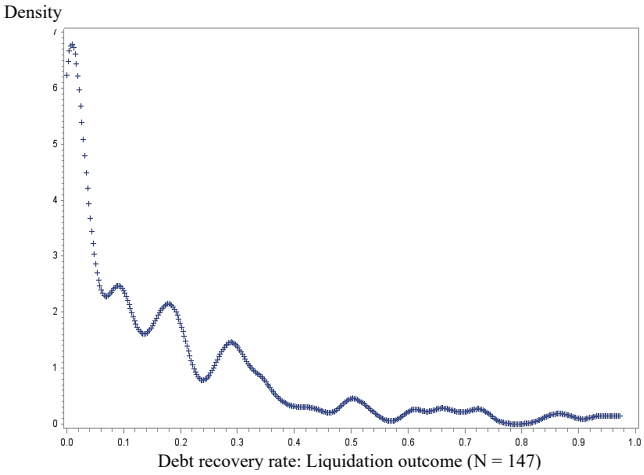
Table A1: Definition and codification of the causes of default (Source: Blazy et al., 2011; 2013)

Causes of default	Items
Finance	*Causes of default endogenous to the company emerging from its financial operations* Longer delays on accounts receivable; Contagion/reported losses from subsidiaries; Shorter delays on accounts payable; Bad speculation, problems due to exchange rates fluctuation; Lack of financial support from the holding; Lack of equity (compared to leverage/liabilities); Loan refusal; Decrease public subsidies; Excessive contractual interest rates
Strategy-Management	*Causes of default endogenous to the company emerging from its strategic-management operations* Youth of the company (inexperience); Voluntary dissolution of the activity; Failure of important projects (partnerships, investments, reorganizations); Dumping; Weak accounts reporting/deficient informational system; Manager's incompetence; Dispute among the managers; Excessive takings from the managers; Insufficient provisions; Lack of knowledge on the real level of costs of returns; Bad evaluation of inventory; Problems of transmission of the company/difficulties in restructuring
Production	*Causes of default endogenous to the company emerging from its productive operations* Overinvestment; Depreciation of assets; Excessive operating costs (other than wages: external expenses, raw materials...); Excessive personnel expenses; Brutal disappearance of suppliers; Unsuitable process of production; Under-investment
External environment	*Causes of default exogenous to the company emerging from the surrounding environment* Unfavourable fluctuation of exchange rates; Increase of the competition; Decreasing demand (sector level); ''Force majeure'' (war, natural catastrophe, industrial crisis, politics, bad price evolution); Public policy less favourable to the sector; Period of credit crunch; Excessive interest rates (macroeconomic level); Increase of operating costs (macro. level: raw materials, GMW. . .)

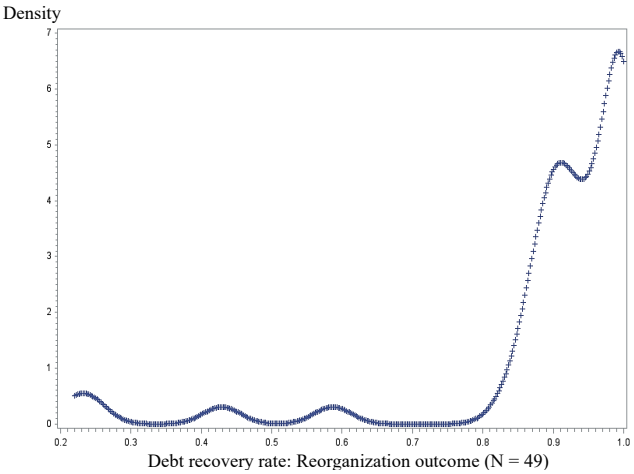
Outlets	*Causes of default exogenous to the company deriving from its target market* Brutal disappearance of customers; Customer(s) in default; Product(s) too expensive (price too high); Bad evaluation of the market; Product(s) too cheap (price too low); Unsuitable products; Obsolete products; Loss of market shares (regular fall of the firm's demand)
Accident	*Causes of default exogenous to the company deriving from an accidental event* Swindle/embezzlements affecting the company; Another insolvency procedure (for other companies) is extended to the firm; Disputes with public partners (fiscal inquiry); Disputes with private partners; Death/disease/disappearance of the manager; Disaster; Social difficulties



Graph A1: Distribution of the Debt recovery rate: Total weighted sample



Graph A2: Distribution of the Debt recovery rate: Liquidation outcome



Graph A3: Distribution of the Debt recovery rate: Reorganization outcome

Chapter III

How can bankruptcy law mitigate the tension between entrepreneur-friendliness and credit supply? Empirical answers from cross-country comparisons in Europe

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Abstract

This paper examines the distinct influence of the legal features of reorganization and of liquidation procedures on entrepreneurial growth and bank financing. We contribute to an institution-based view of entrepreneurship inserting in the ongoing debate within bankruptcy literature on the trade-off between entrepreneur-friendly bankruptcy systems to stimulate entrepreneurship and bank lending. This work illustrates how finer tools of analysis of bankruptcy codes allow to individuate legal provisions that permit to spur both entrepreneurial growth and bank financing. Thanks to the support of a working group of bankruptcy practitioners and academics in 12 European countries and in the U.S., we developed original legal indexes capturing the legal features of their respective reorganization and liquidation procedures. We implement these legal indexes in cross-country analysis of bankruptcy codes for the period 2007-2017. Under both reorganization and liquidation procedures, a higher control over the decisional process to firm's creditors (secured and unsecured) and to shareholders, a higher protection of creditors' claims and of the firm's assets and a higher rank of secured creditors positively affect both entrepreneurial growth and credit supply, without impairing neither the debtor nor the creditors. Such legal provisions allow, under reorganization procedures to create a more business-friendly environment, increasing chances for business reorganization, and under liquidation procedures to facilitate the debt repayment process. This work is the first to perform a cross-country analysis of the different types of reorganization and liquidation procedures contained in several national bankruptcy codes. It contributes to the law and economics literature developing original legal indexes for reorganization and liquidation procedures, and illustrating how normative action can be undertaken to optimize the legal design of bankruptcy codes to prompt both entrepreneurship and credit supply.

Keywords: Entrepreneurship, Credit supply, Institution-based view, Bankruptcy law, Cross-country analysis
JEL Classification: L26, K22, G33

1. Introduction

There is an ongoing debate on the effective benefits of entrepreneur-friendly bankruptcy designs onto entrepreneurial development. Several authors within bankruptcy literature call for an institution-based view of entrepreneurship (Peng et al., 2010; Lee et al., 2011), that is, they deem the features of bankruptcy codes directly responsible for the entrepreneurial turmoil of a country. Indeed, various works agree in that entrepreneur-friendly bankruptcy systems positively affect entrepreneurial development, lowering entry barriers for new business creation thanks to the reduction of the downside risk associated to default (Fan and White, 2003; Armour and Cumming, 2008; Peng et al., 2010; Lee et al., 2011). Concurrently, some others show that debtor-friendly regimes, through the partial shift of the risk burden to creditors, induce banks to tighten access to credit, which in turn may discourage entrepreneurship (Scott and Smith, 1986; Berkowitz and White, 2004; Araujo et al., 2012; Cerqueiro et al., 2016). Overall, as Armour and Cumming (2008) discuss, this dual evidence suggests the existence of a trade-off between entrepreneur-friendly measures to stimulate entrepreneurship and the tightening of lending conditions, with bankruptcy law thus expected to find the right design for balancing these two apparently contrasting forces.

The literature (La Porta et al., 1997; 1998; Armour and Cumming, 2008; Peng et al., 2010; Lee et al., 2011; Blazy et al., 2013) has introduced the use of legal indexes as a validated solution to study the influence of bankruptcy provisions onto economic activities. Yet, apart from the work of Blazy et al. (2013), as themselves highlight, legal indexes adopted in bankruptcy research proxy for the overall country's insolvency framework. Still, national insolvency codes are usually composed as a set of different procedures, with some dedicated to business reorganization and some others to liquidation (La Porta et al., 1998; Estrin et al., 2017). Estrin et al. (2017), looking at the *ex-ante* effects of bankruptcy law, argue that entrepreneurs and creditors are sensitive to diverse aspects of the insolvency code so that there are opportunities for optimizing the legal design of bankruptcy to both stimulate entrepreneurship and credit supply. In addition, they sustain that country-level indexes can difficultly capture the complexities of bankruptcy codes, suggesting that "future research would doubtlessly benefit from the development of more sophisticated and finely grained measures of bankruptcy codes" (p. 994). Along a similar line, Morrison (2007) discusses how entrepreneurs of defaulted firms are biased toward firm's reorganization whereas creditors toward its liquidation. Consequently, legal indexes constructed at the country-level may in part miss the differences emerging between liquidation and reorganization procedures and their diverse effects onto entrepreneurship and credit supply. We may explain the scant use of more granular lens of analysis considering the depth and the width of data required to develop reliable legal indexes

capturing the different legal features of the diverse procedures prescribed in the bankruptcy codes. Still, following the remarks of Morrison (2007) and of Estrin et al. (2017), we suggest that indexes capturing the differences between reorganization and liquidation procedures would allow to highlight elements of the codes that spur both entrepreneurship and the supply of credit.

The legal indexes on bankruptcy codes developed by Blazy et al. (2013) constitute a notable exception. Indeed, following Hart (2006), they build a series of legal indexes to account for the diverse features of five different bankruptcy procedures listed under French and English insolvency codes. They implement such legal indexes to explain credit recovery rates from actual bankruptcy proceedings. They show that procedures aimed at firm's reorganization averagely produce higher recoveries than liquidation procedures, confirming that sensible divergences exist on the economic effects initiated by reorganization compared to liquidation procedures.

Following such advancements, the scope of this work is twofold. Firstly, we develop an innovative series of legal indexes capturing the features of reorganization and liquidation procedures comprised under the insolvency codes of 13 countries. At this aim, we involved a working group of bankruptcy practitioners and academics in 12 European countries as well as in the United States. Then, we collected detailed national insolvency statistics to account for the actual use of each type of procedure. This task was performed thanks to direct support by Insol Europe (the European organization of professionals specialized in insolvency), consulting with their professionals in several countries, and accessing the databases of national statistical institutes, ministries of justice, chambers of commerce. The output of this first work is a Principal Component Analysis (PCA) that maps the most notable differences among the reorganization and the liquidation procedures of the studied countries. Reorganization procedures appear more flexible and reserve a higher decisional power to the shareholders compared to liquidation ones, conditions that facilitate business reorganization. Liquidation procedures appear instead more protective of the value of the firm's assets and of the secured and unsecured claims, with secured creditors benefitting from a higher rank (averagely) compared to the other classes of claimants, and facilitate coordination among stakeholders, conditions that should ease the repayment process and allow for higher debt recovery rates.

Secondly, we test how such differences among the legal features of reorganization and of liquidation procedures impact onto entrepreneurial development and onto bank lending. As entrepreneurs and creditors are the main actors driving entrepreneurial growth and credit supply, we focus on a subset of the built legal indexes as proxy for their diverse faculties under the reorganization and the liquidation procedures: namely, their decisional power in bankruptcy, the protection of their claims and their ranking in the absolute priority order of repayment. We

implement panel regression analysis over a cross-country dataset of 13 countries for the period 2007-2017 to examine the relationship between such legal indexes and both the rate of new firm entry and the bank lending rate.

Results show that a stronger decisional power to secured and unsecured creditors as well as to the shareholders under reorganization procedures positively affects entrepreneurial growth with no significant change in the supply of credit. Furthermore, a stronger decisional power to the creditors (secured and unsecured) and to the shareholders in liquidation procedures positively affects the credit supply by banks, without impairing entrepreneurial growth. We also find that, for reorganization procedures, a higher protection granted to the firm's assets and to the secured and unsecured claims as well as a higher ranking recognized to secured creditors positively impact onto entrepreneurial growth with no significant effects onto credit supply. Under liquidation procedures, a stronger protection of firm's assets and of secured claims and a higher ranking of secured creditors positively affect bank lending without undermining the entrepreneurial growth.

Our interpretation is that these legal provisions contribute, under reorganization procedures to create a more business-friendly environment, increasing the likelihood for business reorganization, and under liquidation procedures to ease the debt recovery process while allowing for higher repayments to creditors. Consequently, this will encourage more potential entrepreneurs to initiate new businesses and banks to relax access to credit. We conclude that through analysing the peculiarities of reorganization and liquidation frameworks, it is possible to point out the legal provisions that permit to both spur entrepreneurial development and ease credit supply, thus overcoming the trade-off envisaged by abovementioned literature (e.g. Armour and Cumming, 2008). Normative action can thus be implemented in this direction for the reform of bankruptcy codes, with overall expected beneficial effects onto economic growth, employment and innovation. Indeed, such analysis converges toward the discussion of Eklund et al. (2020) in that bankruptcy legislations are not only a mean for regulating business failure, but indeed represent an important tool of economic policy for enhancing economic growth.

To the best of our knowledge, this work is the first to perform a cross-country analysis of the different types of reorganization and liquidation procedures contained in several national bankruptcy codes. Our contribution to bankruptcy literature is twofold. Firstly, our indexes represent an innovation respect the ones developed by Blazy et al. (2013). Indeed, their indexes are built at the procedure level, with some of such procedures seldom triggered in practice, and are limited to two countries (France and U.K.). Differently, extending the analysis to several countries, we aggregate the procedure-level indexes into either the reorganization or liquidation frameworks provided under the respective insolvency codes. As such, for each country we have a set of indexes

capturing the features of its reorganization framework and a set of indexes capturing the features of its liquidation framework. Also, such legal indexes were weighted by the actual frequency of usage of the associated procedures in each country (the detailed process for the computation of the indexes is presented in Section 3). The split between reorganization and liquidation frameworks appears to better reflect the bias of entrepreneurs and creditors toward reorganization and liquidation, respectively, as previous literature (e.g. Morrison, 2007) suggests (and thus not toward specific procedures, in which case the adoption of procedure-level indexes could be preferable).[61]

Secondly, standing from this dual framework, we individuate the features of bankruptcy codes which are beneficial for stimulating both entrepreneurial development and bank lending, thus contributing to an institution-based view of entrepreneurship as portrayed in the context of bankruptcy by the works of Armour and Cumming (2008), Peng et al. (2010) and Lee et al. (2011). Our results may constitute valuable hints for policymakers for the optimization of bankruptcy codes to both promote the entrepreneurial spirit and avoid an excessive risk burden on credit institutions.

The article is structured as it follows. Section 2 reviews the reference literature; Section 3 presents the methodology used to build the legal indexes in the light of previous works resting on legal indexes; Section 4 presents descriptive statistics on our indexes and, through PCA, confronts the diverse countries in terms of the reorganization and liquidation frameworks provided under their bankruptcy codes; Section 5 proposes an econometrical analysis focusing on a subset of indexes that capture the attributes of the debtor and of the creditors to highlight how the features of reorganization and of liquidation frameworks differently affect the rate of new firm entry and the bank lending rate, followed by robustness tests; Section 6 discusses our findings in the light of previous literature, and Section 7 concludes, illustrating the limitations as well as the implications of the research.

2. Literature review

The seminal study of Armour and Cumming (2008) demonstrates how bankruptcy provisions more lenient toward entrepreneurs positively affect a country's entrepreneurial turmoil. Several works, along the same direction, show that bankruptcy frameworks more protective toward entrepreneurs generate positive stimuli to entrepreneurship. Peng et al. (2010) highlight some entrepreneur-friendly features of bankruptcy codes suggesting that friendlier corporate bankruptcy

[61] In other words, it appears more in line with the cited literature to study the impact of the overall reorganization versus liquidation frameworks (which may be composed by more procedures).

laws, lowering the barriers associated to firm's exit, have beneficial impacts on economic development, attracting more individuals to start up new businesses. On a similar line, Lee et al. (2011) implement cross-countries analysis among 29 countries to demonstrate that bankruptcy systems less severe towards entrepreneurs significantly correlate with higher rates of new firm entry. Positive associations between entrepreneur-friendly bankruptcy features and entrepreneurial activity are also found by Fan and White (2003) in the U.S. context.

As Eklund et al. (2020) extensively discuss, the evolution of bankruptcy laws toward more lenient frameworks for debtors has been a process going on since a few decades among countries, together with the increasing perception that bankruptcy systems define incentives for creditors and entrepreneurs that can have important repercussions on the overall economic fabric. In Europe, the reform of bankruptcy laws has been accelerating in recent years under the normative action of the European Union. Namely, European Commission with Recommendation 135/2014/EC formally requested EU countries the reform of their bankruptcy systems toward more lenient solutions aimed at business reorganization, and many countries have been active in this front in the last twenty years (as Italy, France, U.K., Spain, Finland, Romania, Poland, Denmark, Belgium, Germany among the others).[62]

Yet, parallelly to this academic as well as normative trend toward more entrepreneur-friendly bankruptcy systems, several authors highlighted that such lenient measures lead to an increase of the risk burden on credit institutions, which respond through a strengthening of the conditions for access to credit, which in turn may negatively affect entrepreneurship (e.g. Armour and Cumming, 2008). Berkowitz and White (2004) show that, in the U.S., in the states where bankruptcy provisions are more protective of debtors, firms are more easily denied credit or are granted a smaller amount at higher costs. Previously, Scott and Smith (1986) demonstrated that financial intermediaries reacted tightening access to credit following the enactment of the more debtor-friendly U.S. Bankruptcy Reform Act of 1978. Practically, once the new code entered in force, both the loan acceptance rate and the granted amounts (in fraction of the initial loan request) declined, whereas the contract rates of interest increased. A similar result was found in Sweden by Cerqueiro et al. (2016), who demonstrate that banks reacted to the 2004 legal change that introduced more lenient provisions for the debtor tightening access to credit, reducing their willingness to lend and increasing the interest rates on loans.

It emerges thus a trade-off initiated by entrepreneur-friendly bankruptcy provisions, that may stimulate entrepreneurial activity from one side while inducing a tightening of credit supply on the other. Yet, the works of Lee and Yamakawa (2012) and Estrin et al. (2017) suggest that

[62] In this respect, see also the recent EU 2019/1023 Directive on Restructuring and Second Chance.

optimized bankruptcy codes can mitigate such trade-off. Addressing the separate effects of personal and of corporate bankruptcy laws onto entrepreneurial activity and bank financing, both works demonstrate that a more granular analysis of bankruptcy codes allows for identifying legal provisions both stimulating entrepreneurship and easing access to credit. This approach represents an important research avenue respect the lens adopted by previous works that often relied on legal indexes built at the country-level, thus missing the granularity proper of bankruptcy codes, a point that Blazy et al. (2013) raise too.

Lee and Yamakawa (2012) focus on the availability of a fresh start for failed entrepreneurs as the most forgiving feature under personal bankruptcy law, and on the automatic stay of assets as the most forgiving feature under corporate bankruptcy law. They find that whilst both induce an increase in the cost of borrowing, which in turn lessens entrepreneurial development, only the fresh start option has a significant positive impact on the rate of new firm births. Estrin et al. (2017) emphasise the influence of personal and corporate bankruptcy laws onto high-aspiration entrepreneurship. They demonstrate that the elements of personal bankruptcy law that boost entrepreneurship are those providing a protection of the debtor's personal assets and allowing for a fresh start after the bankruptcy proceeding. Differently, regarding corporate bankruptcy law, the same study shows that providing a stronger protection of creditors' rights and decision power has a positive effect onto entrepreneurship, especially for high-aspiration entrepreneurship. They suggest this may happen via the indirect effects concerning a larger credit supply. The authors conclude that entrepreneurs and creditors are sensitive to different features of the bankruptcy law, calling for more sophisticated measures of bankruptcy codes that can permit to optimize their legal designs in order to mitigate the abovementioned tension between entrepreneur-friendliness and credit supply.

We aim answering this call for more granular analyses of bankruptcy codes undertaking an original perspective to study the impact of bankruptcy provisions onto entrepreneurship and credit concession. Whereas Lee and Yamakawa (2012) and Estrin et al. (2017) study the separate effects of personal and of corporate bankruptcy laws, we study the separate effects of the reorganization and of the liquidation frameworks provided under the bankruptcy code. Following Estrin et al.'s (2017) assertions in that entrepreneurs and creditors are sensitive to diverse elements of the insolvency codes, our approach reflects the diverse biases that bankruptcy literature associates to entrepreneurs and creditors: namely, the bias of the first toward insolvent business' reorganization and the bias of the second toward its liquidation (Morrison, 2007).

To the best of our knowledge, research on the effects that the different characteristics of reorganization and of liquidation procedures have onto the trade-off between entrepreneur-friendly bankruptcy provisions and credit supply is still missing. We argue that some space of manoeuvre

exists for ideally designing reorganization and liquidation procedures in such a way that their provisions both sustain entrepreneurial development and foster bank lending.

At this aim, we develop a set of legal indexes that capture the multiple features of the reorganization versus liquidation frameworks prevailing under the various national bankruptcy codes. We develop our indexes building from the legal indexes originally presented by Blazy et al. (2013). Indeed, as their indexes were developed at the procedure-level, they reveal perfectly suitable for our research aims that could be summarized with the following question: which are the distinct legal provisions of reorganization and of liquidation procedures that enhance both entrepreneurial growth and credit supply?

3. Legal indexes on bankruptcy codes

As anticipated, several works implement legal indexes to study the impact of bankruptcy law designs onto economic activities, as testified by the remarkable works of La Porta et al. (1997; 1998), Armour and Cumming (2008), Peng et al. (2010), Lee et al. (2011). The indexes adopted by these works rest at the country-level to capture the features of the overall country's insolvency framework. Yet, more procedures usually are provided under a country's bankruptcy code, and they have generally either a reorganization or a liquidation aim (La Porta et al., 1998; Blazy et al., 2013). As such, a more granular study of bankruptcy codes involves the adoption of legal indexes capturing the diverse features of reorganization and of liquidation procedures.

The paper of Blazy et al. (2013) makes a contribution in this respect. Focusing their analysis on the French and English bankruptcy codes, they develop a series of legal indexes at the procedure-level. Following Hart (2006), they identify seven dimensions of bankruptcy procedures, namely: the coordination of creditors' actions, the protection of debtor's assets, the decision process, the accessibility to the bankruptcy procedure, the production of information, the protection of creditors' claims and their ranking (absolute priority rule), the sanction of faulty management. For each dimension they built a composite index.

For the present work, we used the dataset originally developed by Blazy et al. (2013), extending the data to more countries (i.e. beyond France and U.K.) and refining the methodology on how the legal indexes are computed. Here, we take advantage of the fact that such indexes are computed at the procedure-level. This allows us to distinguish the bankruptcy procedures depending on their main purpose, i.e. reorganization or liquidation. Indeed, the bankruptcy literature indicates entrepreneurs and creditors to be respectively biased toward reorganization and liquidation

(Morrison, 2007), which in practice this translates into more specialized procedures devoted to business reorganization or to liquidation. Consequently, to reflect these opposite biases, it appears more appropriate to split between the reorganization and liquidation frameworks (separately) emerging from the country's bankruptcy code. Our main innovation thus compared to the indexes of Blazy et al. (2013) relies in the computation of legal indexes that capture the whole reorganization framework and the whole liquidation framework in each country of analysis, aggregating the indexes initially developed at the procedure-level. An ulterior sophistication of our legal indexes is that, when aggregating the procedure-level indexes we consider the frequency of usage of each procedure in line with national insolvency statistics. As such, our indexes also reflect the actual usage of each procedure, so that a more prevalent procedure weights more in the final value of the aggregated index compared to a procedure triggered rarely. We now describe the methodology implemented for the construction of our legal indexes.

We worked with a group of academics and bankruptcy practitioners in the following 13 countries: Italy, Hungary, Romania, U.K., Poland, Netherlands, Finland, Luxembourg, France, Denmark, Germany, Austria and U.S..[63] Each of them answered a template reporting 291 "yes-no" questions on the content of the bankruptcy code.[64] They were asked to complete the same template for the diverse procedures listed under the bankruptcy code of their country. Each procedure thus was tracked with its own template. In the case of contrasting answers by two or more experts on the same procedure, they were asked to provide further explanations, and revise their answers. Once completed this double-checking process, final answers were identical. This process was finalized in 2011. Yet, as some of the analysed countries underwent bankruptcy reforms in recent years, we verified carefully for which years our indexes are still valid. In 2019, our indexes can be considered up to date for Austria, Denmark, Finland, France, Hungary, Italy, Luxembourg, Netherlands, U.K. and U.S.; Germany, Poland and Romania experienced relevant bankruptcy reforms respectively in 2012, 2016 and 2014, so that for the econometrical analysis the analysed timeframe in these countries is stopped at such years.

For the 13 analysed countries, we have completed templates for 37 procedures.[65] Following a subsequent round of consultation with bankruptcy experts, we distinguished those procedures

[63] The original working group included academics and practitioners also for Brazil, China, South Africa, Argentina, Spain, Switzerland and Tunisia but, as for these countries the needed data were partial, they were excluded from the analysis.

[64] The template used by Blazy et al. (2013) rests on 132 questions, that were expanded to 291 to achieve a more comprehensive characterization of the diverse elements of the studied procedures. A complete representation of the procedure-level indexes is presented in Blazy et al. (2018).

[65] If any procedure was not contemplated by the experts, we assume that it is a procedure rarely adopted in practice or devoted at regulating peculiar cases out of the scope of this work.

devoted to business reorganization from those having a full liquidation aim.[66] We disregarded three procedures regulating out-of-court settlements (as such out of the scope of our research which focuses on in-court procedures), one Luxembourgish procedure as rarely triggered in practice[67] and with no official statistics published (*Sursis de paiement*) and one Italian procedure reserved to large enterprises that involves the intervention of the Ministry for Economic Development undergoing a peculiar administrative path (*Amministrazione straordinaria delle grandi imprese in crisi*). *Table 1* illustrates the procedures captured by our legal indexes.

[Insert *Table 1* here]

The remaining templates refer to 32 procedures. Each filled template consists in a list of 291 "yes/no" replies, that we convert in as many binary indexes that equal 1 whenever the replies consist in a "yes" and 0 otherwise. The binary indexes were classified in groups to cover the diverse features of the procedures (described below). We then summed the binary indexes reported within each group, and we rescaled in percentage the resulting value. As such, each group of binary indexes results summarized by its corresponding indicator expressed in percentage value. Accordingly, each indicator ranges between 0 and 100%: the closer the value to 100% and the more prominent the legal feature captured by the indicator for the specific procedure.[68]

A set of indicators captures the general features of the procedure, reflecting the dimensions introduced by Blazy et al. (2013); another set of indicators refers more closely to the attributes of the debtor and of the creditors, representing an integration with respect to the work of Blazy et al. (2013). Indeed, a closer look on the attributes of debtor and of both secured and unsecured creditors is required to investigate the tension between entrepreneur-friendliness and credit supply, as such actors are directly involved in entrepreneurial growth and credit concession. The following indicators capture the general features of the procedure:

- *Accessibility* measures how easily the procedure can be triggered by the firm or by its stakeholders;

[66] The Austrian *Insolvenzverfahren* procedure and the German *Regelinsolvenzverfahren* procedure emerge as neutral toward either reorganization or liquidation, thus we classify them as "Reorganization/Liquidation".

[67] This was confirmed us by a Luxembourgish bankruptcy expert.

[68] For instance, the indicator *Information* relates to 10 binary indexes associated to as much "yes/no" questions as, among the others "*The procedure is not confidential*" (Yes/No), "*Court and/or practitioner(s) may share the information they gather with the creditors (whatever their type)*" (Yes/No). Let us say that the returned template, for the procedure "P", reports 7 Yes replies and 3 No replies for the questions related to the indicator *Information*. Thus, for the procedure "P", the indicator *Information* equals to $7/10 \times 100 = 70\%$. Thus, for each analysed procedure P, being the indicator X related to N binary indexes, if Z binary indexes equal to 1 ("Yes" replies, with $0 \leq Z \leq N$), the indicator X is equal to $Z/N \times 100$.

- *Information* measures how much the procedure produces public information;

- *Flexibility* measures how much the procedure facilitates the research of a negotiated solution to firm's insolvency among the diverse claimholders;

- *Cost* measures the tendency for the procedure to generate high costs;

- *Sanction* measures how much the procedure is sanctionative against the entrepreneur/firm's managers;

- *Coordination* measures how much the procedure facilitates coordination among the diverse claimholders involved in the bankruptcy proceeding (the secured creditors, the unsecured creditors, the employees, the State, the bankruptcy practitioners and the shareholders).

The following set of indicators deals with the debtor's and creditors' attributes (distinguishing between secured and unsecured)[69], capturing three different dimensions:

1) the protection of the assets/claims of the debtor/creditors, which includes:

- *Protection_Debtor*, that measures how much the procedure protects the debtor's assets;
- *Protection_Secured*, that measures how much the procedure protects the secured creditors' claims, accounting for both those born before and after[70] bankruptcy triggering;
- *Protection_Unsecured*, that measures how much the procedure protects the unsecured creditors' claims, accounting for both those born before and after bankruptcy triggering;

2) the decisional power along the procedure, which includes:

- *Decision_Shareholders*, that measures how strong the decisional power of the firm's shareholders is regarding the outcome of the proceeding;
- *Decision_Secured*, that measures how strong the decisional power of the secured creditors is regarding the outcome of the proceeding;

[69] One may note that we do not include in the analysis the indicators that Blazy et al. (2013) developed to capture the attributes of other categorises of claimholders as the State and the employees. These indexes were relevant for their aims of explaining the debt recovery rates from actual bankruptcy proceedings (where the debt recoveries include the recoveries of the claims of the employees and of the State as well). Differently, as mentioned above, as the aim of our paper is to investigate the tension between entrepreneur-friendliness and credit supply, we believe it is more insightful to concentrate the analysis on the attributes of the debtor and of the creditors (secured and unsecured).

[70] Claims born after bankruptcy triggering correspond to "new money" claims.

- *Decision_Unsecured*, that measures how strong the decisional power of the unsecured creditors is regarding the outcome of the proceeding;

3) for the secured creditors, the ranking in the absolute priority order[71]:

- *Ranking_Secured*, that measures how much the procedure prioritizes the recovery of secured creditors' claims compared to that of the other categorises of claimholders (i.e. the employees, the State, the bankruptcy practitioners, the unsecured creditors, the shareholders).

Each of the 32 procedures was thus pictured through these 13 indicators. Yet, the indicators so far described are computed at the procedure-level. To test for the diverse effects of reorganization versus liquidation frameworks onto entrepreneurship and credit supply, we must now distinguish the two bankruptcy paths. The next section explains thus how we aggregated the procedure-level indicators to build the legal indexes capturing the features of the two frameworks for the analysed countries.

Aggregation process: Reorganization vs. Liquidation frameworks

Each procedure was classified as "reorganization" or "liquidation" procedure, depending on its main purpose (as described above). Thus, for each country we assign to its reorganization framework the procedures classified as "reorganization" procedures, and to its liquidation framework those classified as "liquidation" procedures.[72] Yet, a country may have more reorganization/liquidation procedures that enter its reorganization/liquidation frameworks. Thus, we needed a reliable criterium to aggregate, into one legal index per legal feature, the procedure-level indicators for the procedures entering the same reorganization/liquidation framework. We decided to compute the weighted average of the procedure-level indicators, using as weights the frequencies of usage of each procedure. In this way, a procedure that is frequently triggered weights more in the value of the indexes than a procedure rarely triggered. Such inclusion of national insolvency statistics for the computation of the legal indexes constitutes an important innovation of our work. Indeed, this approach permits to go beyond a descriptive representation of the content of the bankruptcy code through the legal indexes, considering how this is implemented in a country's actual economy. Indeed, as bankruptcy codes usually present a set of procedures, the choice of

[71] The rankings of unsecured creditors and of shareholders are, tendentially, penultimate and ultimate, respectively.

[72] See Footnote 66 for the processing of the Austrian *Insolvenzverfahren* and of the German *Regelinsolvenzverfahren*.

stakeholders of filing for a specific one conforms as a strategic decision. The use of weights permits to better reflect such entrepreneurs' and creditors' choices and their perceptions about the actual characteristics of the reorganization and liquidation frameworks in their country.[73] This remarks as a granular approach appears more appropriate compared to a country-level approach to capture the specificities of bankruptcy codes.

For each country we gathered national insolvency statistics on the usage of the different types of procedure between 2007-2017. Such information is usually published by the national statistical institutes, ministries of justice, chambers of commerce. For this task we also received support by Insol Europe, the European organization of professionals specialized in insolvency. Indeed, in some countries these statistics are not publicly available, or have restricted access. In those cases, insolvency professionals provided us with the needed information/data. Having the yearly number of proceedings triggered for each procedure, we could thus compute the annual frequencies of usage of each procedure at the country level. Despite being rather stable, the frequencies slightly change over time. We thus consider the arithmetic averages as the weights used for the aggregation of the procedure-level indicators. Therefore, for each country we obtain 13 legal indexes referring to its reorganization framework and 13 legal indexes referring to its liquidation framework.[74]

4. Comparing countries' reorganization and liquidation frameworks

We present now the legal indexes explained in the previous section to compare the reorganization and liquidation frameworks for the sampled countries. We firstly present univariate

[73] Let us take, for instance, the perspective of a potential creditor that is deciding if supply credit to a firm. The creditor may evaluate how her/his claims are protected under the reorganization or under the liquidation framework. Let us take, for instance, the liquidation framework, which comprises, still assuming, two liquidation procedures, A and B. In procedure A the claims are highly protected (let us assume $Protection\_Secured_A$= 90%), whereas in procedure B they are not (let us assume $Protection\_Unsecured_B$= 20%). Yet, let us assume that national insolvency statistics report that procedure A is rarely triggered, whereas procedure B constitutes most of liquidation proceedings. Overall, the creditor will perceive that her/his claims, under the liquidation framework, are not well protected, and this may affect the lending decision. Similar reasonings, also taking the entrepreneur's perspective, can be extended to all other legal indexes.

[74] Except for Denmark for which legal indexes cover the reorganization framework only as the experts did not return, unfortunately, information on liquidation procedures. The Austrian *Insolvenzverfahren* and the German *Regelinsolvenzverfahren* were deemed neutral toward a reorganization/liquidation aim, as such the indicators related to these procedures were used for the computation of the legal indexes for both the liquidation framework and the reorganization framework. As ulterior note, for the Austrian reorganization framework we could also collect national insolvency statistics on an ulterior reorganization procedure rarely adopted in practice and, as such, for which experts did not provide information. Nevertheless, for the sake of precision, we included the frequencies of this procedure in the computation of the weights for the reorganization framework and, as such, the legal indexes for the Austrian reorganization and liquidation frameworks slightly differ, even if deriving from the indicators of the same *Insolvenzverfahren* procedure.

statistics. *Table 2a* reports the legal indexes capturing the general legal features of the reorganization and liquidation frameworks. *Table 2b* presents the legal indexes focused on the attributes of debtor and creditors (again, for both frameworks). To facilitate the interpretation of the legal indexes we concentrate on their average values, reported in the last rows of the two tables.

[Insert *Table 2a* here]

[Insert *Table 2b* here]

The reorganization/liquidation frameworks emerging from the bankruptcy codes are closely related to the wider aspects of the countries' legal origin (Blazy et al., 2013) and institutional environment. As such, some features of the reorganization and liquidation frameworks within the same country may appear quite similar. This is testified by the close average values of the indexes *Accessibility*, *Information*, *Cost* and *Decision_Secured*. Divergences in such dimensions may appear when confronting such frameworks between countries (thus different normative and institutional environments). Undisclosed results (available upon request) show that bankruptcy frameworks (both reorganization and liquidation) with a legal origin close to the French system (France, Luxembourg, Netherlands, Romania, for our dataset) are averagely less accessible and reserve less decisional power to secured creditors compared to bankruptcy frameworks with an English, German or Scandinavian origin[75] (indeed, in the French system the decisional power is reserved to the court, as Davydenko and Franks (2008) and Blazy et al. (2011) discuss); diversely, bankruptcy frameworks with a legal origin close to the German system (Germany, Austria, Hungary, Poland) show higher legal costs, on average. Yet, the confront of bankruptcy codes between countries and/or legal origins is something that previous research did in good part (e.g. La Porta et al., 1997; 1998; Peng et al., 2010), whereas our research aims to highlight the differences that the diverse countries share between their reorganization and liquidation frameworks and to relate them to entrepreneurial development and credit supply. In this respect, our univariate statistics show common divergences between reorganization and liquidation frameworks. Looking at the general legal features of the two frameworks (*Table 2a*), reorganization results more flexible compared to liquidation. This appears reasonable considering that business reorganization often requires some creative financial and operational solutions, whereas liquidation is more rigid as it concentrates onto assets' sale for funds recovery, which are then distributed following a pre-determined APR (Absolute Priority Rule). On the other side, this rigidity of liquidation procedures

[75] See La Porta et al. (1997) for a classification of countries by their legal origin.

permits better coordination among claimholders in the unfolding of the proceeding, as suggested by the higher average value of *Coordination*. Yet, the sanctions for faulty management (cf. *Sanction*) prove much higher under the liquidation framework, representing a disincentive respect faulty actions that can lead to the dissolution of the business.

Looking at the legal indexes capturing the attributes of debtor and creditors (*Table 2b*), the protection of debtor's assets appears higher under liquidation (cf. *Protection_Debtor*). Indeed, a stay of claims usually applies under liquidation to prevent a creditors' run. This permits an ordered claims' repayment in line with the APR. Indeed, secured creditors' claims appear much more protected under liquidation (cf. *Protection_Secured*); restructuring plans in fact permit more easily deviations from the APR. Also, understandably, secured claims appear more protected compared to unsecured ones (cf. *Protection_Unsecured*). Concerning the secured creditors' rank, divergences between the countries appear stronger, with French-oriented bankruptcy codes showing lower values for the *Ranking_Secured* index (for both liquidation and reorganization frameworks). This appears in line with the stated goals of the French bankruptcy law (see Art. 1 of French Law no. 85-98 of 25/01/1985) which, as Blazy et al. (2011; 2013) discuss, prioritizes business' reorganization and the safeguard of employment to the repayment of liabilities. Looking at the distribution of the decisional power between debtor and creditors (cf. *Decision_Shareholders*, *Decision_Secured*, *Decision_Unsecured*), *Table 2b* shows that the decisional power is lower, logically, for the shareholders compared to both secured and unsecured creditors. Yet, shareholders' decisional power is higher under the reorganization framework. In reorganization procedures a larger power granted to shareholders appears needed for the achievement of a negotiated solution to financial distress. Decisional power is also more pronounced for unsecured than for secured creditors, for both the reorganization and the liquidation frameworks. We suggest that the higher control on the outcome of the proceeding reserved to the unsecured creditors in part allows to compensate the lower protection of their claims compared to that usually granted to secured claims.

The previous univariate analysis permits to highlight notable differences between the reorganization and liquidation frameworks and between national bankruptcy codes, yet for each index separately. To capture the combined effects of the legal indexes altogether we must rely on multivariate analysis. We thus apply Principal Component Analysis (PCA) to map the various "families" of bankruptcy systems. Indeed, Blazy et al. (2013) show how this approach is suitable for outlying the features of diverse insolvency frameworks. *Fig. 1* reports the resulting biplot.[76] The first factor (horizontal axis) explains 27.3% of the initial inertia, and it mainly opposes the protection of creditors' claims (left side of the biplot) with their participation and coordination in

[76] Descriptive statistics and the correlation matrix of the legal indexes are provided in Section 5, *Table 3*.

the decisional process of bankruptcy (right side of the biplot), confirming the trade-off between claims' protection and control on the proceeding's outcome highlighted by univariate statistics. In other words, a procedure that is highly protective toward a class of claimholders (e.g. the secured creditors) tends to grant less protected claimholders (e.g. the unsecured creditors) the power to decide (for instance, through a vote on a restructuring plan) on the proceeding's outcome. Indeed, the more protected class is safeguarded (in good part, at least) whatever the outcome. The second factor (vertical axis) explains the 22.7% of the initial inertia. It opposes (at the bottom side of the biplot) entrepreneur-friendly legal provisions – the shareholders' decisional power and flexibility for a negotiated outcome – versus legal provisions mostly protecting the creditors' interests (upper side of the biplot) – disclosure of information, the ranking of secured claims, the protection of the assets' value (as a basis for creditors' repayment) and the sanction of the firm's entrepreneur/managers. Yet, the vertical axis also shows that such "creditors-friendly" provisions come with higher legal costs of the proceeding (*cf*. the index *Cost*), which reduce the final funds available for claims' repayment.

The interpretation of the biplot follows. A legal provision stands out for a reorganization/liquidation framework the closer this to the corresponding legal index.[77] For instance, in the French liquidation framework the protection of secured and unsecured claims stands out, as the French liquidation framework plots closely to the two indexes *Protection_Secured* and *Protection_Unsecured*. Following this reading key, the PCA biplot highlights several bankruptcy groups, gathered in the different quadrants. Reorganization/liquidation frameworks plotted in the first quadrant strengthen the ranking of the secured claims and can be triggered quite easily. This encompasses the Austrian and German procedures and the English liquidation framework. The Finnish reorganization framework displays close features, even though it shows to prioritize coordination among claimholders, while secured creditors are granted more decision power. Frameworks positioned in the second quadrant exhibit a flexible structure with some decisional power reserved to shareholders. It is the case for the Italian reorganization framework, the U.S. procedures and, with lower intensity (closer to the origin), the Dutch reorganization framework.[78] Also, the U.S. reorganization framework confirms to grant decisional power to creditors. This aligns to the legal provisions of Chapter 11 that rests on the vote of creditors for the adoption of the debt restructuring plan (e.g. Franks and Torous, 1989). Frameworks in the third quadrant oppose to

[77] Still, the fact that a reorganization/liquidation framework plots far from an index does not necessarily indicate that the corresponding legal feature is absent from such legal framework. Instead, it suggests that the legal feature is not preponderant in characterising the overall legal design of the specific reorganization/liquidation framework.

[78] We can see from *Table 2a* and *Table 2b* that the Dutch reorganization framework scores lower values on *Flexibility* and on *Decision_Shareholders* compared to the Italian reorganization framework.

those in the first quadrant. Indeed, they reserve less decisional power to secured and unsecured creditors as well as a lower ranking to the secured claims. They appear less accessible, also in terms of information's availability, yet providing for lower legal costs. Frameworks in the fourth quadrant result characterized by a sensible protection of secured and unsecured claims, while formulating sanctions to faulty management.

From PCA we can draw two main conclusions. Firstly, bankruptcy frameworks across countries differ sensibly, which is quite expected given the different normative environment they derive from. Secondly and more interestingly, the PCA tells us that, for the same country, the reorganization and the liquidation frameworks can sensibly diverge in terms of legal features. For instance, we can easily see that the Italian reorganization framework (second quadrant) appears quite entrepreneur-friendly, reserving some decisional power to the shareholders and being flexible for a negotiated solution to debt restructuring. Differently, the Italian liquidation framework appears less entrepreneur-friendly, with a sounder protection of secured and unsecured claims while providing sanctions to faulty management. Divergences appear also between reorganization and liquidation frameworks for Netherlands (second and fourth quadrants, respectively), the U.K. (fourth and first quadrants, respectively), as well as Finland (first and third quadrants, respectively). We argue that, as reorganization and liquidation procedures rest on diverse legal features, and being tendentially entrepreneurs biased toward business' reorganization and creditors toward liquidation (Morrison, 2007), it is possible to design reorganization and liquidation procedures to elude the trade-off between entrepreneur-friendliness and credit supply envisaged by previous literature (e.g. Armour and Cumming, 2008; Estrin et al., 2017) to spur both entrepreneurial growth and bank lending.

The aim of the next section is thus to test how such differences between reorganization and liquidation frameworks explain entrepreneurial growth and credit supply by banks. At this scope, we use an additional set of macroeconomic data and we focus on the legal indexes capturing the attributes (under bankruptcy law) of the two actors directly responsible for entrepreneurship and credit supply, the debtor and the creditors.

[Insert *Graph 1* here]

5. Bankruptcy law, entrepreneurship and credit supply

The PCA analysis highlights several differences between reorganization and liquidation frameworks. One can thus expect such differences to influence the *ex-ante* (i.e. prior to default) decisions of entrepreneurs and creditors concerning the establishment of a new firm and the supply of credit, respectively. In other words, how do entrepreneurs and banks act in such decisions knowing that their interests are more/less protected in the eventual case of default? Abovementioned literature suggests the existence of a trade-off between entrepreneur-friendly bankruptcy provisions and the supply of credit by banks. Yet, Estrin et al. (2017) claim that entrepreneurs and creditors are sensitive to different elements of the bankruptcy law, so that a granular study of bankruptcy codes permits to identify optimized legal provisions to stimulate both entrepreneurial growth and credit supply. Indeed, as entrepreneurs are tendentially biased toward business reorganization whereas creditors toward business liquidation (Morrison, 2007), we argue that the identification of such optimized legal provisions calls for the analysis of the diverse effects that reorganization and liquidation provisions have onto entrepreneurial development and bank lending.

Accordingly, we concentrate the econometrical analysis on the attributes that bankruptcy law provides to the two main actors involved in entrepreneurial growth and credit supply, the debtor and the creditors. Consequently, we focus on debtor's and creditors' decisional power in bankruptcy (*Decision_Shareholders*, *Decision_Secured*, *Decision_Unsecured*), on the level of protection of the debtor's assets and of the creditors' claims (*Protection_Debtor*, *Protection_Secured*, *Protection_Unsecured*) and on the secured creditors' ranking in the absolute priority order (*Ranking_Secured*). We then relate such legal indexes, separately for the reorganization framework and for the liquidation framework, to: *i*) the annual new firm entry rate at the country level, to measure for entrepreneurial development (similarly to Lee et al. (2011) and Lee and Yamakawa (2012)); *ii*) the annual lending rate at the country level, that is, the domestic credit to the private sector by banks in percentage of the national GDP, to measure for their credit supply.

For every country, we measure the annual new firm entry rate as the ratio between the new firms registered each year and the total number of registered firms.[79] The data were collected from the Eurostat database and, for the U.S., from the U.S. Census Bureau.[80] The annual lending rate is

[79] We do not include financial and insurance companies.

[80] The legal forms covered by business statistics for the Eurostat database and the U.S. Census Bureau appear similar. Still, we control for possible differences between the two classifications in our robustness tests. As reported by the Eurostat database, legal units covered in business statistics include "legal persons whose existence is recognized by law independently of the individuals or institutions which may own them or are members of them, such as general partnerships, private limited partnerships, limited liability companies, incorporated companies etc. Legal units as well

defined as the yearly domestic credit to private sector provided by the banking sector (referring to loans, purchases of nonequity securities, trade credits and other accounts receivable) in percentage of the country's GDP. The data originates from the World Bank database.

To better capture the relationships between our legal indexes and the *ex-ante* entrepreneurial/financing choices by entrepreneurs/banks, we adopt an ulterior refinement of our indexes: we multiply them for the annual country's bankruptcy rate (defined as the ratio between the annual number of proceedings opened at the country level (obtained from national insolvency statistics as described in Section 3) and the number of registered enterprises[81]). The bankruptcy rate, from an entrepreneur's or a creditor's point of view, represents the probability that the firm will face a bankruptcy proceeding in the specific country/year. As such, the legal indexes multiplied by the bankruptcy rate reflect the probabilities that they will indeed "activate" following the triggering of the legal proceeding. This represents an ulterior innovation in the econometrical implementation of our legal indexes that permits to consider entrepreneurs' and creditors' perspective on the chances for a bankruptcy triggering, chances that may affect their decision to establish a new firm or to supply credit.[82]

The bankruptcy rate changes every year (and for every country), so that the same holds for the legal indexes (now multiplied by the bankruptcy rate). Thus, to study the relationship between the legal indexes and our two dependent variables, we adopt a panel data fixed effect regression model with robust standard errors. Random effects are preferred in presence of time-invariant explanatory variables, as Lee and Yamakawa (2012) explain. We performed anyway all our estimates also adopting random effect models, and for each model we performed the Sargan-Hansen

include natural persons who are engaged in an economic activity in their own right" (see: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Enterprise [Access date: 30/01/2021]). As for the U.S. Census Bureau, business statistics cover corporations and other corporate legal forms of organizations, sole proprietorships, partnerships, non-profit organizations, mostly excluding government businesses (see: https://www.census.gov/programs-surveys/susb/about/glossary.html [Access date: 30/01/2021]).

[81] Due to some missing data, we used the multiple imputation interface in Stata to reconstruct 21 missing values for the bankruptcy rate. The procedure consists in using the known values for the variable of interest (the bankruptcy rate, in our case) and a set of explanatory variables (for our case, a set of country-level factors) to predict reasonable values for the missing values of the variable of interest (the bankruptcy rate).

[82] We perform this operation only for econometrical analysis and not for the univariate analysis presented in Section 4 as such appraisal of the probabilities for a bankruptcy triggering is superfluous for the previous univariate analysis where the aim is to picture the features of the reorganization and liquidation frameworks independently by entrepreneurial and credit supply decisions and thus by entrepreneurs' and creditors' perspective on the risks for a bankruptcy triggering. The appraisal of the chances for a bankruptcy triggering is instead fundamental when relating the legal indexes to entrepreneurial and lending decisions. Indeed, an ulterior refinement we performed for econometrical implementation was to compute the weights used to aggregate the procedure-level indicators into the legal indexes considering the total of the proceedings opened each year (and not the diverse totals of the reorganization and of the liquidation proceedings as done for the legal indexes used for univariate analysis). This permits to consider not only the probabilities for a bankruptcy triggering, but also the probabilities for a liquidation procedure triggering or a reorganization procedure triggering.

test[83], whose results (significant *p-value*) confirm that the fixed effects models are preferable for our analysis. In fact, as Armour and Cumming (2008) assert, several international differences can impact onto countries' economic activities, including social, legal, cultural ones, and the adoption of country fixed effects permits to control for those that do not vary over the sampled period. Furthermore, the use of robust standard errors permits us to adjust for within-cluster correlation (Williams, 2000), as Lee and Yamakawa (2012) suggest when dealing with multiple observations per country.[84]

For our econometrical analysis, we use a cross-sectional dataset reporting data for the 13 studied countries for the period 2007-2017; yet, as Germany, Poland and Romania experienced relevant bankruptcy reforms respectively in 2012, 2016 and 2014, as anticipated, we limit the analysis to such years for these three countries.[85] Due to missing data for the control variables hereinafter described, Denmark and Poland were excluded from models explaining the annual lending rate (still, they are included for models explaining the annual new firm entry rate). Following Lee and Yamakawa (2012), an ultimate stage of data collection was performed to allow us to control in our econometrical analysis for several dimensions. We thus address the following factors, at the country-level, using data from the IMF database, the World Bank database, the European Central Bank (ECB) Statistical Data Warehouse and the Federal Reserve Economic Data (FRED) database:

- macroeconomic trend: we consider the real GDP growth rate (in PPP), the inflation rate and the real interest rate (source: IMF database, World Bank database);

- development of the banking industry: we consider the national number of banks and the national number of commercial bank branches per 100.000 adult habitants (source: ECB Statistical Data Warehouse, FRED database, World Bank database);

- development of the stock market: we consider the stock market capitalization as percentage of the country's GDP and the value of yearly traded shares in a stock market exchange as percentage of the country's GDP (source: ECB Statistical Data Warehouse, FRED database);

[83] The Sargan-Hansen test is an alternative to the Hausman test for testing fixed-effect vs. random-effect estimations, which can be extended to heteroskedastic and cluster-robust estimations.

[84] Lee and Yamakawa (2012) cite the *cluster* command in Stata in this respect, which is equivalent to specify the *robust* option (i.e. robust standard errors) for fixed effect models.

[85] After such years, our legal indexes may not well represent the features of the countries' new bankruptcy frameworks.

- normative environment: we consider the Rule of Law index provided by the World Bank which captures to what extent the legal rules and institutions are recognized by the agents (including the quality of contract enforcement, the property rights, the police, the courts). Moreover, from the templates received by the experts we also developed an ulterior index, named *Entrepreneur-friendliness*, which proxies how much the overall insolvency code creates a friendly environment to entrepreneurs.[86] This index ranges between +1 and -1: the closer to +1 and the friendlier the insolvency code to entrepreneurs, the closer to -1 and the less friendly the insolvency code to entrepreneurs. As for the other legal indexes, we then multiplied the *Entrepreneur-friendliness* index by the bankruptcy rate. Such an index permits us to control for the tendency of the overall bankruptcy system (comprising thus both the reorganization and liquidation frameworks) to create a more/less entrepreneur-friendly environment. This appears in line with the results of previous literature on the existence of significant effects onto economic activities of the overall design of the bankruptcy system (e.g. La Porta et al., 1997; 1998; Lee et al., 2011; Peng et al., 2010).

Finally, we control for the Gross domestic expenditures on Research and Development (R&D) expressed as a percentage of the country's GDP (source: World Bank database). Indeed, following the remark of Armour and Cumming (2008), expenses on R&D can signal the level of idea generation of a country as well as potential R&D externalities enhancing entrepreneurial action.

Variables' values are annual; for econometrical implementation all explanatory variables are lagged one year (compared to the two dependent variables). As we are explaining two different dependent variables – *New firm entry rate* and *Lending rate* – the controls adopted in the corresponding functions differ in part. The following *Equation 1* and *Equation 2* formally describe the two functions:

$$\begin{aligned} \textit{New firm entry rate}_{i(t)} = {} & \beta_0 + \beta_1\, \textit{Legal index}_{i(t-1)R/L} + \beta_2\, \textit{GDP growth}_{i(t-1)} + \beta_3\, \textit{Inflation}_{i(t-1)} + \beta_4\, \textit{Commercial bank} \\ & \textit{branches}_{i(t-1)} + \beta_5\, \textit{Total value of stock traded/GDP}_{i(t-1)} + \beta_6\, \textit{R\&D expenditures/GDP}_{i(t-1)} \\ & + \beta_7\, \textit{Rule of law}_{i(t-1)} + \beta_8\, \textit{Entrepreneur-friendliness}_{i(t-1)} + \varepsilon_i \end{aligned} \quad [1]$$

[86] The experts filled a specific section of the templates where the binary indexes dealt with how much each procedure is oriented toward business' reorganization and liquidation. Using as weights the frequencies of usage of each procedure at the country level, we then aggregated the procedure-level values into a unique *Entrepreneur-friendliness* legal index (thus one value for the overall country's insolvency code, comprising reorganization and liquidation procedures) which is the weighted average of the procedure-level values.

$$Lending\ rate_{i(t)} = \beta_0 + \beta_a \text{ Legal } index_{i(t-1)R/L} + \beta_b\ GDP\ growth_{i(t-1)} + \beta_c\ Real\ interest\ rate_{i(t-1)} + \beta_d\ Market\ capitalization\ of\ listed\ companies/GDP_{i(t-1)} + \beta_e\ Total\ value\ of\ stock\ traded/GDP_{i(t-1)} + \beta_f Number\ of\ banks_{i(t-1)} + \beta_g\ Entrepreneur\text{-}friendliness_{i(t-1)} + \varepsilon_i \quad [2]$$

where:

- *New firm entry rate*$_{i(t)}$ is the ratio between the new firms registered and the total number of registered firms in country *i* at year *t*;

- *Lending rate*$_{i\,(t)}$ is the domestic credit to private sector provided by banks in percentage of the GDP in country *i* at year *t*;

- *Legal index*$_{i\,(t-1)R/L}$ is the legal index, in country *i* at year (*t - 1*)[87], for which we are testing the relationship with the dependent variable, that may refer alternatively to either country *i*'s reorganization framework (*R*) or to country *i*'s liquidation framework (*L*), where each of the tested model contains one of the following legal indexes[88]: *Decision_Shareholders*, *Decision_Secured*, *Decision_Unsecured*, *Protection_Debtor*, *Protection_Secured*, *Protection_Unsecured*, *Ranking_Secured*;

- *GDP growth*$_{i(t-1)}$ is the real GDP growth rate (at Purchasing Power Parity – PPP) for country *i* at time (*t-1*);

- *Inflation*$_{i(t-1)}$ is the inflation rate for country *i* at time (*t-1*);

- *Commercial bank branches*$_{i(t-1)}$ is the number of commercial bank branches per 100.000 adult habitants in country *i* at time (*t-1*);

- *Total value of stock traded/GDP*$_{i(t-1)}$ is the total value of traded shares in stock market exchanges as percentage of the GDP in country *i* at time (*t-1*);

- *R&D expenditures/GDP*$_{i(t-1)}$ is the Gross domestic expenditures on Research and Development expressed as a percentage of the GDP in country *i* at time (*t-1*);

[87] We recall that legal indexes change every year as they are multiplied by the bankruptcy rate for econometrical implementation; as such, as for the other explanatory variables, they are lagged one year.

[88] As reported in Section 5.1, the inclusion of more legal indexes in the same model caused an increase of the variance inflation factors (VIFs), signalling the threat of multicollinearity.

- *Rule of law*$_{i(t-1)}$ is an index assessing the perceptions of the extent to which agents have confidence in and abide by the rules of society in country *i* at time (*t-1*), in a scale from 1 to 100 (we apply a natural logarithm transformation);

- *Entrepreneur-friendliness*$_{i(t-1)}$ is a legal index that accounts for the entrepreneur-friendliness of the entire insolvency code in country *i* at time (*t-1*), assuming continuous values between -1 and +1;

- *Real interest rate*$_{i(t-1)}$ is the average cost of borrowing on bank loans adjusted for the inflation in country *i* at time (*t-1*);[89]

- *Market capitalization of listed companies/GDP*$_{i(t-1)}$ is the average stock market capitalization as percentage of the GDP in country *i* at time (*t-1*);

- *Number of banks*$_{i(t-1)}$ is the number of banks operating in country *i* at time (*t-1*);

- ε_i refers to robust standard errors for country *i*.

The results of the econometrical analysis are presented in the next section.

5.1 Results and findings

Table 3 reports the descriptive statistics and the Pearson correlations for the variables that enter our regression models. For every model, we compute the variance inflation factors (VIFs) to check whether multicollinearity represents a threat to our analysis. For models where *New firm entry rate* is the dependent variable the mean VIF is 2.58 and the maximum individual VIF is 6.18 (for a control variable), whereas for models where *Lending rate* is the dependent variable the mean VIF is 2.19 and the maximum individual VIF is 5.89 (for a control variable). Such values are well below the suggested threshold of 10 (Lee et al., 2011; Neter et al., 1996; Chatterjee and Hadi, 2006), suggesting that multicollinearity is unlikely to affect our analysis. All the performed models are globally significant at the 1% level (Fisher statistic). The R^2 are satisfying, lying between 0.23 and 0.52 for models where *New firm entry rate* is the dependent variable and lying between 0.41 and 0.48 for models where *Lending rate* is the dependent variable.

[89] We compute the real interest rate using the following well-known formula: since $(1 + i_{real}) = (1 + i_{nominal})/(1 + p)$, thus the real interest rate can be computed as $i_{real} = (i_{nominal} - p)/(1 + p)$, with i = nominal interest rate and p = inflation rate, similarly to Lee and Yamakawa (2012).

[Insert *Table 3* here]

We build successive models onto the entire dataset. In each model we test the impact of one legal index, separately for the reorganization framework and the liquidation framework, onto the two dependent variables, i.e. the *New firm entry rate* and the *Lending rate* (the presence of more legal indexes in the same model resulted in an increase of the VIFs, suggesting the risk of multicollinearity). *Table 4* presents the results of the econometrical analysis. To facilitate the comparisons between models, *Table 4* reports only the coefficients and significance levels of the studied legal indexes. The complete models with the full list of controls are reported in the Appendix in *Table A1* (dependent variable: *New firm entry rate*) and in *Table A2* (dependent variable: *Lending rate*). Looking at *Table 4* from the left to the right, the first column reports the legal indexes used in the models as independent variable. The second and third columns report the results for the legal indexes referring to the reorganization framework to explain the *New firm entry rate* (column 2) and the *Lending rate* (column 3). The fourth and fifth columns report the results for the legal indexes referring to the liquidation framework for explaining the *New firm entry rate* (column 4) and the *Lending rate* (column 5). Above each result we report the corresponding model.

Entrepreneurs and creditors appear biased toward reorganization and liquidation, respectively (Morrison, 2007; Estrin et al., 2017). From that view, a same legal feature is expected to affect differently the *New firm entry rate* and the *Lending rate* whether it refers to the reorganization framework or to the liquidation framework. If confirmed, there are some areas for improvement to optimize bankruptcy codes to stimulate both entrepreneurship and bank lending.

The first three indexes reported in *Table 4* (*Decision_Shareholders*, *Decision_Unsecured*, *Decision_Secured*) deal with the decisional power of the firm's shareholders, the unsecured creditors and the secured creditors during the proceeding. For the reorganization framework, all three indexes have a significant and positive effect onto *New firm entry rate*, whereas they do not affect the *Lending rate*. This suggests that a higher control of reorganization by the firm's shareholders, unsecured and secured creditors is beneficial for entrepreneurial growth and does not lead banks to restrict credit supply. Now, turning toward the liquidation framework, the three indexes have no effect on the *New firm entry rate*, whereas they have a significant and positive effect onto the *Lending rate*. This indicates that a higher control over liquidation proceedings by firm's shareholders, unsecured and secured creditors leads to an increase in the supply of credit by banks without affecting entrepreneurial growth. Overall, these results suggest that reorganization procedures reserving stronger control and decisional power to such diverse firm's claimholders create a more business-friendly framework that facilitates the research of a negotiated solution to

the firm's crisis. As entrepreneurs are continuation-biased (Morrison, 2007), this, *ex-ante*, boosts entrepreneurship. Yet, this has no effect, *a priori*, on credit supply as creditors are biased toward business liquidation and thus are less concerned by reorganization legal provisions (which instead fully attracts entrepreneurs). Also, a higher control granted to firm's creditors in liquidation increases creditors' willingness to lend, thus stimulating bank lending. Moreover, if some control in liquidation is reserved also to shareholders, these will be prevented to disrupt firm's value, for instance by undertaking highly risky projects when insolvency arises or delaying a bankruptcy filing (an argument that Hart (2006) poses). This is expected to have beneficial effects onto debt recovery rates, inducing creditors to lend more, *ex-ante*. Still, the higher power of both creditors and shareholders in liquidation has no *a priori* impact onto entrepreneurship, as entrepreneurs do not benefit from liquidation.

A similar reasoning applies to the results for the indexes referring to the protection of debtor's assets and of creditors' claims. For the reorganization framework, *Protection_Debtor*, *Protection_Unsecured*, *Protection_Secured* have a positive and highly significant effect onto *New firm entry rate*, whereas they have insignificant effects onto the *Lending rate*. A higher protection of debtor's assets and of creditors' claims granted by reorganization procedures permits to preserve the value of the business while preventing from a creditors' run. This increases the chances to successfully restructure the insolvent business, *ceteris paribus*, and creates *ex-ante* beneficial effects onto entrepreneurial growth. Yet, this has no influence onto credit supply, as creditors are less concerned about the reorganization scenario being biased toward liquidation. Indeed, for the liquidation framework the results show that *Protection_Debtor*, *Protection_Unsecured*, *Protection_Secured* have no effect onto *New firm entry rate*. Entrepreneurs do not benefit from liquidation proceedings; thus, a higher assets' and claims' protection in liquidation has little effects onto entrepreneurial growth. Yet, the impact of *Protection_Debtor* onto the *Lending rate* is positive and highly significant, and a similar result holds for *Protection_Secured*. If secured creditors, which usually are banks, know that their claims are protected under the liquidation scenario, and that the value of firm's assets will be preserved so to permit higher debt recovery rates, they will be more willing to lend, *ex-ante*. This line of reasoning is also confirmed by the fact that, under the liquidation scenario, *Protection_Unsecured* has not a significant effect onto the *Lending rate*. Indeed, the fact that unsecured claims are protected should not affect bank lending given that unsecured creditors usually are not banks, so they are not expected to significantly influence bank financing.

The results for the last index, *Ranking_Secured*, again confirm this line of interpretation. Indeed, for the reorganization framework, the index shows significant positive effects onto the *New*

firm entry rate but not onto the *Lending rate*. For the liquidation framework such index has no impact on the *New firm entry rate* whereas it positively and significantly affects the *Lending rate*. The fact that secured claims benefit from a higher rank in the repayment process represents an incentive for secured creditors to commit in the restructuring of the insolvent firm. This can facilitate the achievement of a negotiated solution to firm's insolvency, creating a more business-friendly environment. This, *ex-ante*, boosts entrepreneurial growth, *ceteris paribus*, being entrepreneurs oriented toward reorganization. Still, this does not affect *a priori* credit supply, as creditors are less concerned about reorganization provisions. For the liquidation framework, instead, a higher rank recognized to secured claims induces banks (that usually detain secured claims) to increase credit supply, as they feel more protected if firm's default verifies; still, this has no effect, *a priori*, onto entrepreneurship, being entrepreneurs more oriented toward the reorganization scenario as not gaining from liquidation.

Results from econometrical analysis appear to confirm thus our main argument: entrepreneurs and creditors are differently biased toward firm's reorganization and liquidation. Thus, it is possible to disentangle the distinct effects of the legal provisions of reorganization and of liquidation procedures to stimulate both entrepreneurial growth and credit supply. Indeed, under both reorganization and liquidation frameworks granting a higher control over the decisional process to firm's creditors (secured and unsecured) and to shareholders, strengthening the protection of creditors' claims and of the firm's assets and providing secured creditors with a higher rank permits to stimulate both entrepreneurial growth and credit supply, without impairing neither the debtor nor the creditors. This, consequently, opens room for the optimization of the legal design of insolvency codes. We thus leave to Section 6, after the robustness tests section, the discussion of such results and of the arising normative implications.

[Insert *Table 4* here]

5.2 Robustness tests

We performed a set of additional tests to verify the robustness of our findings. Since access to financial resources may be easier where financial institutions and markets are more developed (Guiso et al., 2004), with expected positive effects onto entrepreneurship and credit concession, we run all our models including the Financial Development Index developed by the IMF which summarizes the level of development of financial institutions and markets in terms of their depth, size and efficiency (at the country level). Moreover, Berkowitz and White (2004) consider the level

of banking competition as an ulterior factor that may affect firms' access to credit. They use the Herfindahl index to capture banking competition. We thus include the Herfindahl index for credit institutions based on total assets to explain the Lending rate (data on European countries collected from the ECB Statistical Data Warehouse and for the U.S. from the report of Meyer (2018)). Results do not qualitatively differ compared to the original ones.

Also, we introduced a variable measuring the number of years since 2006 (the initial year at which data for our explanatory variables refer) to seize if any time trend is present (as Lee et al. (2011) and Lee and Yamakawa (2012) suggest in a similar context), affecting entrepreneurial growth and/or credit supply. Results for the corresponding tests are in line with our main findings.

As our sampled period covers the years of the 2008-2010 global financial and economic crisis, we run the analysis removing observations for the years 2008-2010, 2009-2011, 2010-2012, when the crisis hit economic activities the most.[90] Our results are mostly preserved, with a few changes of significance among the legal indexes. Thus, to explain this occurrence, we examined the distribution of the legal indexes across the studied timeframe to verify any peculiarity characterising the crisis period, finding no evidence in this respect. We conclude that the observed changes of significance can be reasonably explained by the reduced number of observations in the models following the removal of the crisis period.

We also run the analysis excluding the countries one by one to verify if any country is leading the results somehow (including the U.S., as for this country the business legal forms covered by business statistics may slightly differ, as described in footnote 80). Again, our original results are mainly preserved, with one exception. When removing Hungary, the legal indexes for the liquidation framework are not significant anymore in explaining the *Lending rate* (whereas legal indexes are still significant in explaining the *New firm entry rate*). We checked the distribution of such legal indexes for Hungary, and values appear particularly higher compared to the other countries. The higher values derive from a higher bankruptcy rate in Hungary and from a high frequency of liquidation proceedings, and not from a high value of the indexes *per se* (i.e. as emerging from the templates returned by the experts). Indeed, univariate statistics for the indexes show that legal indexes for Hungary have lower values compared to other countries (*Table 2b*, indexes not multiplied by the bankruptcy rate). As described in the earlier part of Section 5, the bankruptcy rate, from the point of view of an economic agent (e.g. a creditor, an entrepreneur), conforms as the firm's probability of facing a bankruptcy proceeding (in the specific country/year). Thus, the legal indexes multiplied by the bankruptcy rate display the probabilities that such indexes

[90] We performed such robustness test excluding the interested years at triads as removing the whole 2008-2012 period would have implied a steep reduction in the number of observations.

will "activate" following a bankruptcy triggering. Hence, Hungarian liquidation provisions will have stronger effects on the lending decisions of creditors (that is, on the *Lending rate*), given the higher likeliness (frequency) of liquidation triggering in this country. Indeed, evidence of high bankruptcy rate and frequency of liquidation triggering in Hungary is reported also by Blazy and Stef (2020) for the years 2007-2011. Consequently, such evidence supports the decision to weight the legal indexes by the bankruptcy rate and by the frequency of reorganization/liquidation triggering for explaining how bankruptcy provisions affect entrepreneurs' and creditors' decisions and, thus, entrepreneurial growth and credit supply.

We also used the Rule of law index by the World Bank, which captures to what extent the legal rules and institutions are recognized by the agents, to explain the *Lending rate* (we already included this index to explain the *New firm entry rate* in original models). The original findings remained preserved. As for the exclusion from the original models of indexes capturing countries' social (e.g. Hofstede et al., 2002) or legal (e.g. La Porta et al., 1997; 1998) dimensions that do not variate over time, as Armour and Cumming (2008) explain, this does not affect the robustness of our findings as any social or legal difference across countries which is invariant for the sampled period is captured by the country fixed effects adopted in the regression models.

Lee et al. (2011) and Lee and Yamakawa (2012) conjecture that entrepreneurial development at time *t-1* may influence entrepreneurial development at time *t*. Thus, we consider the annual new firm entry rate at the country level during the previous year to account for its potential effect onto entrepreneurial development in the following year. Results are in line with those from our main models.

We also controlled for the business closure rate (the ratio between the firms suppressed each year at the country level and the total number of registered firms in that country – data collected from the Eurostat database and, for the U.S., from the U.S. Census Bureau). Our original findings remained preserved by such test.

6. Discussion and normative implications

This article aims at offering elements of answer to the trade-off envisaged by previous literature (e.g. Armour and Cumming, 2008; Estrin et al., 2017; Lee and Yamakawa, 2012) between the entrepreneur-friendliness of a bankruptcy code and easier credit conditions by financial institutions. If we rely on the classical opposition between "pro-debtor" and "pro-creditor" bankruptcy frameworks we may never solve the puzzle as, adopting such approach, it appears

straightforward that a bankruptcy code more forgiving to entrepreneurs will induce them to undertake riskier projects leading financial institutions to react tightening access to credit. Yet, we recognize two major flaws in this approach. From one side, it misses to grasp the complexities of insolvency codes, which are often composed as a set of diverse bankruptcy procedures, generally having either a reorganization or a liquidation aim. In this respect, our analysis shows that these are designed through different legal features that may be differently lenient toward entrepreneurs. Secondly, such "pro-creditor/pro-debtor" dichotomy misses to recognize that entrepreneurs and creditors are sensitive to diverse aspects of the insolvency code, with the first tendentially biased toward business reorganization and the second toward its liquidation (Estrin et al., 2017; Morrison, 2007). Consequently, if we undertake a more granular approach for the study of bankruptcy codes, disentangling how the diverse features of reorganization and of liquidation procedures drive entrepreneurial growth and credit supply, we may find opportunities for optimizing the legal design of the bankruptcy law in a way that is neither pro-debtor nor pro-creditor, as it is beneficial for both.

The implementation of our legal indexes, that capture the diverse features of the reorganization and of the liquidation frameworks in more countries, returns several interesting findings. Firstly, univariate statistics and PCA suggest that not only bankruptcy procedures vary among different countries, as previous literature envisaged, but also within the same country, as the features of procedures aimed at business reorganization and those of procedures aimed at business liquidation may sensibly differ. Indeed, on average, reorganization procedures show a more flexible structure and they reserve a higher decisional power to the shareholders, two features that serve the scope of facilitating the research, among the diverse stakeholders, for a negotiated solution to firm's insolvency. Liquidation procedures, instead, appear averagely more protective of both the creditors' claims and the value of the firm's assets, granting a higher rank to secured creditors and providing for a higher coordination among the diverse classes of claimholders. These appear conditions functional for an ordered administration of the repayment process that should also lead to better debt recovery rates thanks to the higher protection ensured to the value of the firm's assets. Moreover, for both reorganization and liquidation procedures the decisional power reserved to the unsecured creditors appears higher compared to that granted to the secured creditors. We suggest that such higher decisional power in part permits to compensate the lower protection granted to unsecured claims compared to that reserved to the secured ones.

Econometrical analysis permits to highlight how such divergences between reorganization and liquidation procedures affect entrepreneurial growth and credit supply. Firstly, the reported findings show that when reorganization procedures reserve higher decisional power to both shareholders and creditors, entrepreneurial growth significantly raises. Estrin et al. (2017) argue that

enhancing creditors' rights in reorganization procedures may be beneficial to entrepreneurship via the indirect effects deriving from a larger credit supply. Our finding aligns to theirs but differs in the explanation, as we do not find an effect of a stronger creditors' power in reorganization procedures onto the lending rate. We explain this with the fact that creditors are tendentially biased toward business' liquidation (Morrison, 2007), and thus less concerned by the legal provisions of the reorganization procedures. In addition, we find that also a higher shareholders' decisional power in reorganization positively affects entrepreneurship. This aligns with Hart (2006), who discusses how reserving some leverage in bankruptcy to shareholders leads them to compromise in the restructuring process, whereas the absence of incentives may induce them to undertake highly risky projects when default manifests, or to delay a bankruptcy filing, disrupting the firm's value and reducing chances for business reorganization.

We thus interpret our findings as it follows. When the reorganization procedures share the decisional power among diverse firm's claimholders, thus in the absence of one class of claimholders maintaining the leverage to push toward their own interests, the chances to converge toward a reorganization plan will increase (*ceteris paribus*). This creates a more friendly environment for business rescue, boosting *ex-ante* entrepreneurship. The positive effect of a higher creditors' decisional power in reorganization procedures onto entrepreneurial growth appears thus more related to easier conditions for business reorganization than to the loosening of the credit supply. This agrees with the findings of Franks and Sussman (2005) and of Couwenberg and de Jong (2006), who document banks' engagement in the rescue process of defaulted firms under the English and the Dutch bankruptcy codes, respectively, which are quite protective toward creditors. Still, given creditors' biases toward business' liquidation, they will be much concerned by having enough decisional power in liquidation procedures. Yet, some decisional power shall be reserved to shareholders too, to prevent them from disrupting the firm's value when a liquidation triggering is close (in line with Hart's (2006) argument), permitting higher debt recovery rates from which creditors benefit. Thus, when liquidation procedures reserve decisional power to both creditors and shareholders, creditors will be more willing to lend, increasing credit supply, with no *ex-ante* impact on entrepreneurship as entrepreneurs do not benefit from liquidation. Our findings confirm such interpretation.

We also find that the more reorganization procedures protect firm's assets and creditors' claims, the sounder the entrepreneurial growth. More, a higher ranking reserved to secured creditors in reorganization shows a similar positive impact onto entrepreneurship. A stronger protection of the firm's assets decreases the likelihood of a creditors' run, thus preserving more the firm's value. As well, the fact that creditors' claims are protected and that secured claims benefit from a higher

rank in the repayment process will incentivize creditors to commit themselves in the reorganization process (in line with the abovementioned findings of Franks and Sussman (2005) and of Couwenberg and de Jong (2006)). *Ceteris paribus*, this increases the chances for a successful business reorganization and creates a more entrepreneur-friendly environment, thus boosting, *ex-ante*, entrepreneurship. Yet, the impact on the credit supply is expected to be limited, as creditors are mostly oriented toward liquidation (Morrison, 2007). Indeed, when the value of firm's assets is preserved under liquidation and when secured claims are more protected and benefit from a higher ranking, the credit supply proved to increase. In fact, these are favourable conditions for higher repayment rates to secured creditors that, being often banks, will be more willing to relax the *ex-ante* supply of credit to firms. In line with such interpretation, Blazy et al. (2013) empirically prove that a higher protection of the value of firm's assets has a positive effect onto the debt recovery rates; they also argue that recovery rates for secured creditors are expected to increase, reasonably, when secured claims are more protected. Our interpretation is confirmed also by the insignificant effect for liquidation procedures of a higher protection of unsecured claims onto the credit supply. Indeed, as usually unsecured creditors are not banks, a stronger protection of their claims is not expected to significantly affect the supply of bank financing. Moreover, the strengthening of secured creditors' rights in liquidation will not have a detrimental effect onto entrepreneurial growth. In fact, entrepreneurs appear tendentially biased toward business reorganization (Morrison, 2007).

From these findings we can derive worthy normative implications. Firstly, our results highlight that the "pro-debtor/pro-creditor" approach is not precise enough to account for the complexity of bankruptcy codes. Indeed, such complexity reveals beneficial, as it permits to find space for optimizing the legal provisions in a way that is favourable to both entrepreneurs and creditors and, consequently, to both entrepreneurial growth and credit supply. In that sense, a fair distribution of the decisional power among secured and unsecured creditors, also reserving some decisional power to the shareholders, can lead all of them to commit in the reorganization process. Under liquidation, this can prevent shareholders from disrupting the firm's value. We cannot deem such provisions to be "pro-debtor" or "pro-creditor", whereas we can infer from our findings that they allow to both create a more business-friendly environment and to stimulate credit supply. Also provisions that permit to preserve the value of the firm's assets and to protect the creditors' claims as well as to increase the ranking of secured creditors reveal beneficial for both entrepreneurial growth and bank lending. Again, these results demonstrate as finer tools of analysis of bankruptcy codes permit to highlight legal provisions that have overall stimulating impacts on the economy.

In addition, the picture returned by our analysis confirms bankruptcy legislation as a proper tool of economic policy, a point stressed also by Eklund et al. (2020). Indeed, a series of inquiry highlights the positive link between local financial activities and the economic success of an area and of smaller and younger firms especially (Guiso et al., 2004; Arcuri and Levratto, 2020). Bankruptcy provisions, thus, in shaping incentives to both start a business and to lend, can significantly contribute to foster economic growth.

The implementation of our legal indexes returns some elements of answer. Yet, one must consider that bankruptcy provisions derive from a country's legal tradition, that reflects the values and social norms of a society. Bankruptcy systems must reveal functional for "that" specific social context, and must encompass also the perception that agents have of the law and how this is enforced by the judiciary institutions. Thus, the design of a more attractive bankruptcy system can reveal a futile exercise if considered in isolation from the specific social context. What appears instead much more worthy is to individuate some legal provisions that may reveal beneficial for stimulating economic growth and to consider them in relation with the specific country's normative and social environment. In this sense, also under the legislative actions of the European Union (we highlight the EU Recommendation no. 2014/135 on a new approach to business failure and insolvency, and the recent EU 2019/1023 Directive on Restructuring and Second Chance) several European countries have been amending their bankruptcy codes in the recent years toward more rescue-oriented frameworks, while strengthening prevention mechanisms. Especially these last seem promising, as their aim is to individuate the first signals of crisis of the business to allow for timely curative actions to prevent the firm from culminating into insolvency. This should create a more friendly business-environment, encouraging the entrepreneurial spirit, and it should reduce the risk burden onto creditors, facilitating the credit supply. Entrepreneur-friendly provisions and credit supply, thus, not only are not facing a trade-off but, indeed, are tightened together, as two engines of the economic growth.

7. Conclusion

The aim of this paper is twofold. Firstly, to highlight in which ways reorganization and liquidation procedures differ. Secondly, to use such differences to identify the legal features of reorganization and liquidation procedures that permit to stimulate both entrepreneurial growth and credit supply, thus providing elements of answer to the trade-off envisaged by previous literature between entrepreneur-friendly bankruptcy provisions and access to credit. We pursue our research

question implementing an original set of legal indexes capturing the features of both reorganization and liquidation procedures for 12 European countries and the U.S. over the time-period 2007-2017.

Concerning the first point, reorganization procedures appear more flexible while reserving a higher decisional power to the shareholders, conditions that facilitate business reorganization. Liquidation procedures are instead more protective of the value of the firm's assets and of the secured and unsecured claims. As well, secured creditors benefit from a higher rank following APR, on average, compared to the other classes of claimants, and coordination among claimholders is also stronger, conditions that should facilitate the repayment process and permit higher debt recovery rates.

Regarding the second point, our findings highlight some legal provisions that, for both reorganization and liquidation frameworks, permit to spur entrepreneurial growth and to increase bank financing, without impairing neither the debtor nor the creditors. Namely, granting a higher control over the decisional process to the firm's creditors (secured and unsecured), reserving some decisional power to the shareholders, enhancing the protection of creditors' claims and of the firm's assets, and providing secured creditors with a higher rank. Our interpretation is that these measures contribute, under reorganization procedures to increase chances for business reorganization creating a more business-friendly environment, and under liquidation procedures to facilitate the repayment process while granting higher debt recovery rates to creditors. Consequently, given that entrepreneurs are tendentially biased toward business reorganization and creditors toward its liquidation (Morrison, 2007; Estrin et al., 2017), more potential entrepreneurs will activate in establishing new businesses, thus spurring entrepreneurial growth, and banks will be more willing to increase the supply of credit. This is expected to have beneficial impacts, *ceteris paribus*, onto economic growth, employment and innovation. Yet, as discussed above, any normative implication arising from these results should be considered in relation with a country's legal tradition and the overall level of development of its formal as well as informal institutions.

Our study is not free from limitations, which indeed represent opportunities for further investigation. This analysis focuses on developed countries and on their formal institutions. Differences may exist between developed and developing countries in the way formal and informal institutions affect economic behaviours (Peng et al., 2005; Lee et al., 2012). Further works may compare mature and emerging economies to trace how formal and informal institutions in the context of bankruptcy jointly affect entrepreneurial as well as lending decisions. Also, our analysis could not distinguish between successful and unsuccessful entrepreneurship. It is hoped indeed that entrepreneur-friendly bankruptcy provisions as well as credit concession are means to stimulate the first, but this is not always the case. Recent investigations show that bankruptcy regulations

diversely affect entrepreneurs in their decision to start a business depending on their personal aspirations (Estrin et al., 2017; Fu et al., 2020), which in turn may affect the successful growth of their ventures. Implementing such individual perspective into the analysis through multilevel modeling may permit to highlight how reorganization versus liquidation provisions diversely concur in stimulating successful entrepreneurship.

Additionally, we concentrate onto in-court procedures. Out-of-court procedures are an important mean through which the firms and the creditors often face insolvency (Blazy et al., 2014) worth of further attention. Often these are confidential procedures as such the data collection can reveal a tough obstacle. Yet, collaborations with financial institutions may permit to access the needed information to shed more light in the topic. Finally, as discussed above, bankruptcy reforms in more countries are strengthening preventive mechanisms. Future studies may thus investigate how these tools, designed to anticipate the resolution of the firm's crisis at its early stages, modify entrepreneurial and lending choices. The hope is that future research will tackle these promising paths of investigation.

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List of tables and figures

Table 1: Studied procedures for the analysed countries

This Table reports, for each of the studied countries, the procedures for which we build our legal indexes. Each procedure is classified as Reorganization if it has a reorganization aim or as Liquidation if it has a full liquidation aim. The Austrian *Insolvenzverfahren* and the German *Regelinsolvenzverfahren* emerged as neutral toward either reorganization or liquidation, thus we classify them as "Reorganization/Liquidation".

Country	Procedure	Classification
Austria	Insolvenzverfahren	Reorganization/Liquidation
Denmark	Konkursbehandling	Reorganization
	Rekonstruktion	Reorganization
Finland	Restructuring proceedings	Reorganization
	Bankruptcy	Liquidation
France	Sauvegarde	Reorganization
	Liquidation judiciaire	Liquidation
	Redressement judiciaire	Reorganization
Germany	Regelinsolvenzverfahren	Reorganization/Liquidation
	Insolvenzplanvverfahren	Reorganization
Hungary	Csődeljárás	Reorganization
	Felszámolási Eljárás	Liquidation
Italy	Accordi di Ristrutturazione dei Debiti	Reorganization
	Concordato Preventivo	Reorganization
	Fallimento	Liquidation
Luxembourg	Gestion contrôlée	Reorganization
	Faillite	Liquidation
	Concordat préventif	Reorganization
Netherlands	Faillissement	Liquidation
	Surseance van betaling	Reorganization
Poland	Postępowanie Naprawcze	Reorganization
	Upadłość Ź Możliwością	Reorganization
	Upadłość Likwidacyjna	Liquidation
Romania	Mandat ad-hoc	Reorganization
	Concordat	Reorganization
	Procédure générale	Liquidation
U.K.	Creditors Voluntary Liquidation	Liquidation
	Compulsory liquidation	Liquidation
	Administration	Reorganization
	Administrative Receivership	Reorganization
U.S.	Chapter 11	Reorganization
	Chapter 7	Liquidation

Table 2a: Univariate statistics on the legal indexes capturing the general legal features for the reorganization and liquidation frameworks in the studied countries

This Table reports, for each of the studied countries, the values of the legal indexes on the general features of their reorganization and liquidation frameworks emerging from their bankruptcy codes. Each value is the weighted average of the values for the procedures classified as reorganization/liquidation within each country, where the weights are the average frequencies of usage of each procedure at the country-level.
Accessibility measures how easily the procedure can be triggered by the firm or its stakeholders; *Information* measures how much the procedure produces public information; *Flexibility* measures how much the procedure is elastic in the research of a negotiated solution to firm's insolvency among the diverse stakeholders; *Cost* measures the tendency for the procedure to produce high legal costs; *Sanction* measures how much the procedure is sanctionative against the entrepreneur/managers; *Coordination* measures how much the procedure permits coordination among the diverse stakeholders involved in the bankruptcy proceeding (the secured creditors, the unsecured creditors, the employees, the State, the bankruptcy practitioners and the shareholders).

	Accessibility (%)		Information (%)		Flexibility (%)		Cost (%)		Sanction (%)		Coordination (%)	
	Reorganization	Liquidation	Reorganization	Liquidation	Reorganization	Liquidation	Reorganization	Liquidation	Reorganization	Liquidation	Reorganization	Liquidation
Austria	47.9	49.2	75.3	77.3	39.0	40.0	78.0	80.0	97.4	100.0	46.8	48.0
Denmark	54.8		86.4		20.0		5.0		50.0		43.4	
Finland	52.8	59.9	72.7	72.7	80.0	80.0	60.0	40.0	50.0	50.0	53.3	56.0
France	60.1	54.4	84.3	100.0	60.0	0.0	50.0	55.0	62.4	100.0	62.1	69.9
Germany	67.2	67.1	90.9	90.9	40.0	40.0	80.0	80.0	83.3	83.3	71.1	70.7
Hungary	61.5	47.2	63.6	54.5	40.0	60.0	45.0	30.0	0.0	100.0	46.7	38.7
Italy	51.4	58.4	71.9	84.7	80.0	19.6	38.1	58.8	15.1	65.4	60.2	51.4
Luxembourg	20.2	43.7	77.3	22.7	40.0	20.0	40.0	40.0	83.3	83.3	48.0	28.6
Netherlands	56.7	45.6	72.7	86.4	60.0	20.0	55.0	60.0	50.0	83.3	61.3	54.7
Poland	51.9	52.4	80.6	86.4	43.2	40.0	90.5	100.0	94.7	66.7	54.1	66.7
Romania	21.4	45.6	53.5	86.4	41.9	20.0	50.9	55.0	81.8	100.0	15.8	73.3
U.K.	58.3	52.0	76.7	77.3	39.4	54.1	45.5	65.9	99.0	100.0	65.4	66.9
U.S.	49.2	49.2	72.7	50.0	80.0	100.0	80.0	40.0	33.3	50.0	93.3	93.1
Average	50.3	52.1	75.3	74.1	51.0	41.1	55.2	58.7	61.6	81.8	55.5	59.8

Table 2b: Univariate statistics on the legal indexes capturing the attributes of debtor and creditors for the reorganization and liquidation frameworks in the studied countries

This Table reports, for each of the studied countries, the values of the legal indexes on the attributes of debtor and creditors in the reorganization and liquidation frameworks emerging from their bankruptcy codes. Each value is the weighted average of the values for the procedures classified as reorganization/liquidation within each country, where the weights are the average frequencies of usage of each procedure at the country-level.
Decision_Shareholders measures how strong is the decisional power of the firm's shareholders regarding the outcome of the proceeding; *Decision_Unsecured* measures how strong is the decisional power of the unsecured creditors regarding the outcome of the proceeding; *Decision_Secured* measures how strong is the decisional power of the secured creditors regarding the outcome of the proceeding; *Protection_Debtor* measures how much the procedure facilitates the protection of the debtor's assets; *Protection_Unsecured* measures how much the procedure facilitates the protection of the unsecured creditors' claims, accounting for both those born before and after bankruptcy triggering; *Protection_Secured* measures how much the procedure facilitates the protection of the secured creditors' claims, accounting for both those born before and after bankruptcy triggering; *Ranking_Secured* measures how much the procedure prioritizes the recovery of secured creditors' claims respect that of all the other categorises of stakeholders (i.e. the employees, the State, the bankruptcy practitioners, etc.).

	Decision_Shareholders (%)		Decision_Unsecured (%)		Decision_Secured (%)		Protection_Debtor (%)		Protection_Unsecured (%)		Protection_Secured (%)		Ranking_Secured (%)	
	Reorganization	Liquidation	Reorganization	Liquidation	Reorganization	Liquidation	Reorganization	Liquidation	Reorganization	Liquidation	Reorganization	Liquidation	Reorganization	Liquidation
Austria	48.7	50.0	58.5	60.0	55.2	56.7	66.4	68.2	46.1	47.3	90.5	92.9	79.2	81.3
Denmark	25.0		40.0		28.6		63.6		59.8		65.2		87.5	
Finland	25.0	0.0	60.0	40.0	60.0	40.0	77.3	77.3	62.5	50.0	74.4	54.9	81.3	50.0
France	0.0	0.0	20.0	0.0	14.3	0.0	80.1	90.9	54.0	53.6	69.7	64.7	45.1	68.8
Germany	50.0	50.0	44.3	40.0	62.9	60.0	72.7	72.7	39.8	42.9	49.0	52.5	96.4	100.0
Hungary	75.0	25.0	20.0	40.0	20.0	40.0	40.9	59.1	0.0	0.0	9.4	24.2	25.0	91.7
Italy	75.0	24.5	76.2	39.2	27.1	36.4	36.4	53.5	51.5	55.1	56.0	78.9	61.7	61.3
Luxembourg	25.0	0.0	60.0	0.0	60.0	8.6	54.5	54.5	13.4	73.2	31.5	80.9	33.3	41.7
Netherlands	50.0	0.0	60.0	80.0	33.3	50.0	40.9	72.7	60.7	60.7	80.0	74.3	93.8	81.3
Poland	25.0	25.0	40.0	20.0	51.4	22.9	54.8	50.0	63.6	53.6	64.6	81.9	65.2	68.8
Romania	25.0	0.0	18.1	20.0	20.0	40.0	45.3	68.2	31.9	26.8	62.3	55.0	50.0	75.0
U.K.	0.8	25.0	39.4	74.1	40.0	64.1	67.3	58.6	33.0	38.1	65.0	96.3	79.0	77.3
U.S.	50.0	25.0	80.0	80.0	80.0	65.7	72.7	63.6	7.1	7.1	12.2	20.8	100.0	100.0
Average	*36.5*	*18.7*	*47.4*	*41.1*	*42.5*	*40.4*	*59.5*	*65.8*	*40.3*	*42.4*	*56.1*	*64.8*	*69.0*	*74.7*

Graph 1: Mapping of the reorganization (R) and liquidation (L) frameworks for the studied countries – Biplot from PCA

This Graph reports the biplot resulting from Principal Component Analysis performed on the legal indexes for the reorganization (R) and liquidation (L) frameworks of the analysed countries. The Horizontal axis refers to the first factor and it explains 27.3% of the initial inertia; the Vertical axis refers to the second factor and it explains 22.7% of the initial inertia.

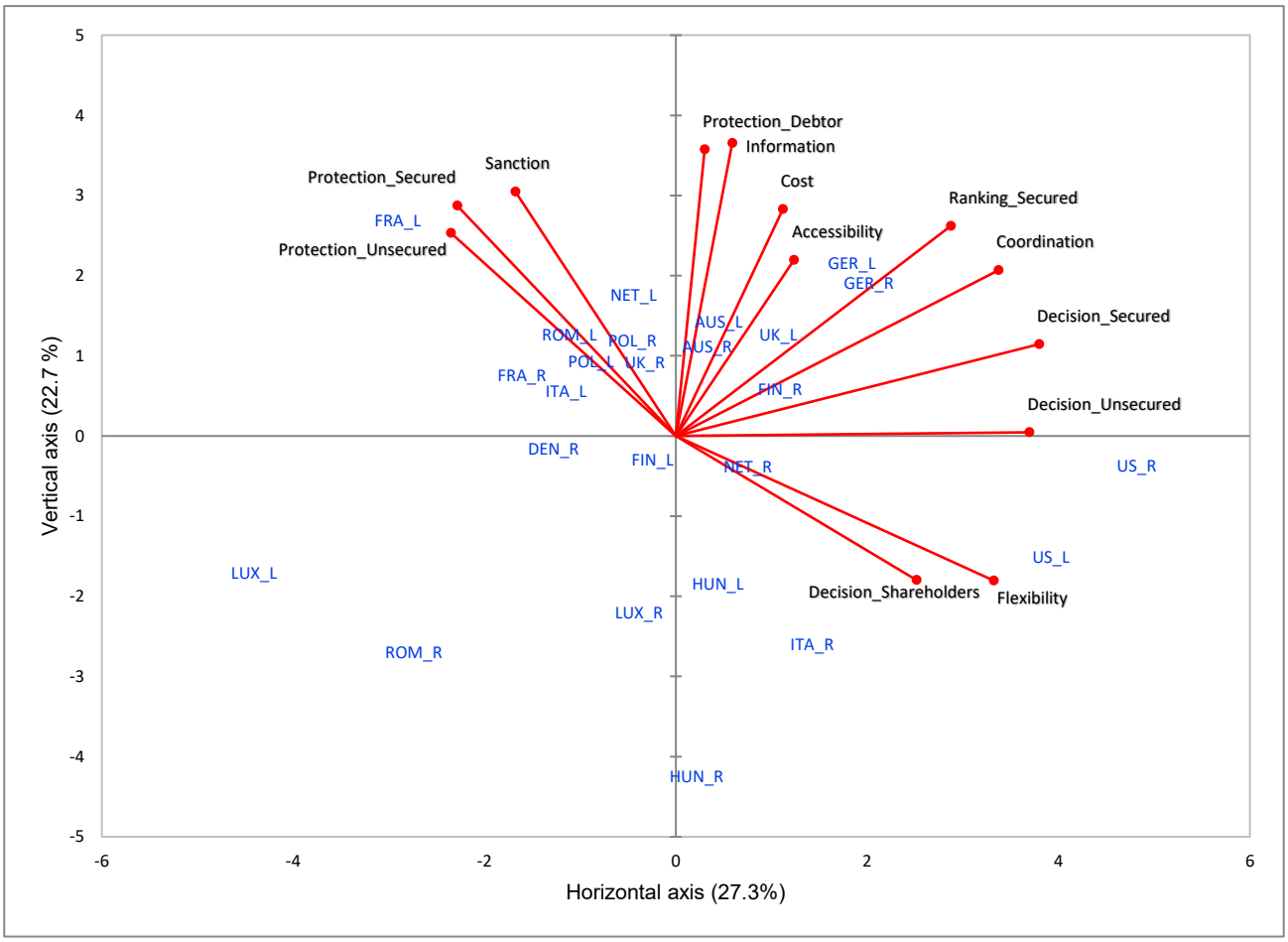

Table 3: Descriptive statistics and Pearson correlation coefficients

This Table reports descriptive statistics (mean, standard deviation, minimum, maximum) and Pearson correlation coefficients for the variables adopted in econometrical analysis; *t* denotes the current year; *R* refers to legal indexes capturing the legal features of the country's reorganization framework; *L* refers to legal indexes capturing the legal features of the country's liquidation framework.

New firm entry rate$_t$ is the ratio between the new firms registered and the total number of registered firms in the country at year *t*; *GDP growth*$_{(t-1)}$ is the real GDP growth rate (at Purchasing Power Parity – PPP) for the country at time (*t-1*); *Inflation*$_{(t-1)}$ is the inflation rate of the country at time (*t-1*); *Commercial bank branches*$_{(t-1)}$ is the number of commercial bank branches per 100.000 adults in the country at time (*t-1*); *Total value of stock traded/GDP*$_{(t-1)}$ is the total value of traded shares in stock market exchanges as percentage of the GDP in the country at time (*t-1*); *R&D expenditures/GDP*$_{(t-1)}$ is the Gross domestic expenditures on Research and Development expressed as a percentage of the GDP in the country at time (*t-1*); *Rule of law*$_{(t-1)}$ is an index assessing the perceptions of the extent to which agents have confidence in and abide by the rules of society in the country at time (*t-1*), in a scale from 1 to 100 (we apply a natural logarithm transformation); *Entrepreneur-friendliness*$_{(t-1)}$ is a legal index that controls for the entrepreneur-friendliness of the entire insolvency code in the country at time (*t-1*), ranging between -1 and +1; *Lending rate*$_t$ is the domestic credit to private sector provided by banks in percentage of the GDP in the country at year *t*; *Real interest rate*$_{(t-1)}$ is the average cost of borrowing on bank loans adjusted for the inflation in the country at time (*t-1*); *Market capitalization of listed companies/GDP*$_{(t-1)}$ is the average stock market capitalization as percentage of the GDP in the country at time (*t-1*); *Number of banks*$_{(t-1)}$ is the number of banks operating in the country at time (*t-1*); *Decision_Shareholders*$_{(t-1)}$ measures how strong is the decisional power of the firm's shareholders regarding the outcome of the proceeding at time (*t-1*); *Decision_Unsecured*$_{(t-1)}$ measures how strong is the decisional power of the unsecured creditors regarding the outcome of the proceeding at time (*t-1*); *Decision_Secured*$_{(t-1)}$ measures how strong is the decisional power of the secured creditors regarding the outcome of the proceeding at time (*t-1*); *Protection_Debtor*$_{(t-1)}$ measures how much the procedure facilitates the protection of the debtor's assets at time (*t-1*); *Protection_Unsecured*$_{(t-1)}$ measures how much the procedure facilitates the protection of the unsecured creditors' claims, accounting for both those born before and after bankruptcy triggering, at time (*t-1*); *Protection_Secured*$_{(t-1)}$ measures how much the procedure facilitates the protection of the secured creditors' claims, accounting for both those born before and after bankruptcy triggering, at time (*t-1*); *Ranking_Secured*$_{(t-1)}$ measures how much the procedure prioritizes the recovery of secured creditors' claims respect that of all the other categorises of stakeholders (i.e. the employees, the State, the bankruptcy practitioners, etc.) at time (*t-1*).

		Mean	S.D.	Min	Max	1	2	3	4	5	6	7	8	9	10	11
1	*New firm entry rate*$_t$	0.097	0.023	0.056	0.161	1										
2	*GDP growth*$_{(t-1)}$	0.017	0.026	-0.083	0.093	0.24***	1									
3	*Inflation*$_{(t-1)}$	0.019	0.016	-0.015	0.08	0.09	0.06	1								
4	*Commercial bank branches*$_{(t-1)}$	33.011	20.145	1.433	100.619	0.02	0.02	-0.04	1							
5	*Total value of stock traded/GDP*$_{(t-1)}$	0.93	1.191	0.003	5.831	0.2**	-0.09	-0.03	-0.1	1						
6	*R&D expenditures/GDP*$_{(t-1)}$	0.02	0.009	0.004	0.037	-0.42	-0.22***	-0.32***	-0.32***	0.19**	1					
7	*Rule of law*$_{(t-1)}$	0.16	0.788	-3.167	0.742	-0.16*	0.01	-0.27***	-0.06	0.31***	0.71***	1				
8	*Entrepreneur-friendliness*$_{(t-1)}$	-0.001	0.002	-0.006	0.007	0.24**	0.05	0.27***	-0.01	0.16*	-0.47***	-0.56***	1			
9	*Lending rate*$_t$	0.949	0.438	0.259	2.013	0.08	-0.2***	-0.23***	0.16**	0.43***	0.42***	0.55***	-0.21**	1		
10	*Real interest rate*$_{(t-1)}$	0.021	0.023	-0.032	0.111	0.01	0.01	0.15*	0.06	-0.26***	-0.48***	-0.67***	0.39***	-0.49***	1	
11	*Market capitalization of listed companies/GDP*$_{(t-1)}$	0.78	0.597	0.048	3.055	0.01	0.1	-0.27***	0.46***	0.4***	0.29***	0.52***	-0.11	0.49***	-0.21***	1
12	*Number of banks*$_{(t-1)}$	894.925	1535.863	36.083	7372.4	-0.34***	-0.02	0	-0.06	0.33***	0.3***	0.14*	0.15*	-0.29***	0.02	0.14*
13	*Decision_Shareholder*$_{R(t-1)}$	0.001	0.002	0	0.011	0.07	0	0.01	-0.15*	-0.15	0.32***	-0.05	0.1	0.35***	0.43***	-0.23**
14	*Decision_Shareholder*$_{L(t-1)}$	0.002	0.004	0	0.017	-0.14	-0.05	0.24***	-0.3***	-0.05	-0.15	-0.17*	-0.11	-0.32***	0.21**	-0.34***

15	*Decision_Unsecured$_{R(t-1)}$*	0.002	0.003	0	0.018	0.08	0	-0.08	-0.14	-0.06	0.41***	0.12	-0.1	0.47***	0.23**	-0.12
16	*Decision_Unsecured$_{L(t-1)}$*	0.004	0.006	0	0.027	-0.07	-0.12	0.26***	-0.43***	0.1	-0.06	-0.1	-0.09	-0.21**	0.16	-0.24**
17	*Decision_Secured$_{R(t-1)}$*	0.001	0.002	0	0.013	0.06	-0.01	-0.05	-0.18**	-0.04	0.44***	0.1	-0.01	0.42***	0.24**	-0.14
18	*Decision_Secured$_{L(t-1)}$*	0.004	0.006	0	0.027	-0.06	-0.11	0.31***	-0.39***	0.02	-0.12	-0.21**	-0.05	-0.29***	0.25***	-0.28***
19	*Protection_Debtor$_{R(t-1)}$*	0.003	0.005	0	0.028	0.18*	-0.01	-0.06	-0.11	-0.11	0.34***	0.06	-0.09	0.46***	0.28***	-0.11
20	*Protection_Debtor$_{L(t-1)}$*	0.007	0.008	0	0.04	0	-0.13	0.24***	-0.25***	-0.18*	-0.12	-0.18*	-0.28***	-0.29***	0.27***	-0.26***
21	*Protection_Unsecured$_{R(t-1)}$*	0.002	0.005	0	0.026	0.18*	0	-0.08	-0.09	-0.14	0.33***	0.07	-0.13	0.49***	0.28***	-0.12
22	*Protection_Unsecured$_{L(t-1)}$*	0.003	0.003	0	0.009	0.18*	-0.14	-0.13	0.31***	-0.12	0.15***	0.3***	-0.34***	0.45***	-0.24**	0.35***
23	*Protection_Secured$_{R(t-1)}$*	0.003	0.006	0	0.029	0.21**	-0.01	-0.02	-0.11	-0.16*	0.29***	-0.02	-0.04	0.44***	0.33***	-0.17*
24	*Protection_Secured$_{L(t-1)}$*	0.006	0.004	0	0.016	0.22**	-0.18*	0.23***	-0.04	-0.05	-0.17*	-0.06	-0.27***	0.16	0.04	-0.04
25	*Ranking_Secured$_{R(t-1)}$*	0.003	0.007	0	0.039	0.15	0	-0.06	-0.11	-0.08	0.34***	0.07	-0.06	0.47***	0.35***	-0.11
26	*Ranking_Secured$_{L(t-1)}$*	0.009	0.012	0	0.062	-0.03	-0.09	0.28***	-0.27***	-0.13	-0.19*	-0.23**	-0.15*	-0.34***	0.29***	-0.29***

Table 3: continued

		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1	*New firm entry rate$_t$*															
2	*GDP growth$_{(t-1)}$*															
3	*Inflation$_{(t-1)}$*															
4	*Commercial bank branches$_{(t-1)}$*															
5	*Total value of stock traded/GDP$_{(t-1)}$*															
6	*R&D expenditures/GDP$_{(t-1)}$*															
7	*Rule of law$_{(t-1)}$*															
8	*Entrepreneur-friendliness$_{(t-1)}$*															
9	*Lending rate$_t$*															
10	*Real interest rate$_{(t-1)}$*															
11	*Market capitalization of listed companies/GDP$_{(t-1)}$*															
12	*Number of banks$_{(t-1)}$*	1														
13	*Decision_Shareholder$_{R(t-1)}$*	-0.04	1													
14	*Decision_Shareholder$_{L(t-1)}$*	-0.01	-0.03	1												

15 Decision_Unsecured$_{R(t-1)}$	-0.05	0.96***	-0.15	1											
16 Decision_Unsecured$_{L(t-1)}$	0.05	-0.06	0.91***	-0.17*	1										
17 Decision_Secured$_{R(t-1)}$	0	0.98***	-0.1	0.99***	-0.13	1									
18 Decision_Secured$_{L(t-1)}$	0	0.04	0.94***	-0.11	0.98***	-0.05	1								
19 Protection_Debtor$_{R(t-1)}$	-0.11	0.94***	-0.19**	0.98***	-0.24***	0.96***	-0.15	1							
20 Protection_Debtor$_{L(t-1)}$	-0.16*	-0.07	0.84***	-0.09	0.83***	-0.09	0.87***	0.11	1						
21 Protection_Unsecured$_{R(t-1)}$	-0.16*	0.93***	-0.23**	0.98***	-0.28***	0.96***	-0.19**	0.99***	0.1	1					
22 Protection_Unsecured$_{L(t-1)}$	-0.37***	-0.13	-0.49***	0.05	-0.38***	-0.01	-0.38***	0.36***	-0.03	0.42***	1				
23 Protection_Secured$_{R(t-1)}$	-0.17*	0.95***	-0.19**	0.97***	-0.23***	0.95***	-0.13	0.99***	0.08	0.99***	0.33***	1			
24 Protection_Secured$_{L(t-1)}$	-0.44***	-0.1	0.54***	-0.09	0.58***	-0.1	0.62***	0.21**	0.82***	0.25***	0.42***	0.23***	1		
25 Ranking_Secured$_{R(t-1)}$	-0.09	0.97***	-0.15	0.99***	-0.18*	0.98***	-0.08	0.99***	0	0.99***	0.17*	0.98***	0.07	1	
26 Ranking_Secured$_{L(t-1)}$	-0.08	-0.05	0.94***	-0.14	0.91***	-0.11	0.95***	-0.04	0.97***	-0.06	-0.25***	-0.05	0.72***	-0.07	1

*p < 0.10; **p < 0.05; ***p < 0.01

Table 4: Legal indexes as explanatory variables of the new firm entry rate and of the lending rate – Summary results from panel data fixed effect regression model

This Table summarized the results from econometrical analysis, reporting the coefficient (*p-value*) for the legal index entering the model reported above each result. The second and third columns report the results for the legal indexes referring to the reorganization framework for explaining the *New firm entry rate*$_t$ (column 2) and the *Lending rate*$_t$ (column 3). The fourth and fifth columns report the results for the legal indexes referring to the liquidation framework for explaining the *New firm entry rate* (column 4) and the *Lending rate* (column 5). *Reorganization* refers to legal indexes capturing the legal features of the countries' reorganization framework; *Liquidation* refers to legal indexes capturing the legal features of the countries' liquidation framework.
New firm entry rate$_t$ is the ratio between the new firms registered and the total number of registered firms in the country at year *t*; *Lending rate*$_t$ is the domestic credit to private sector provided by banks in percentage of the GDP in the country at year *t*; *Decision_Shareholders*$_{(t-1)}$ measures how strong is the decisional power of the firm's shareholders regarding the outcome of the proceeding at time (*t-1*); *Decision_Unsecured*$_{(t-1)}$ measures how strong is the decisional power of the unsecured creditors regarding the outcome of the proceeding at time (*t-1*); *Decision_Secured*$_{(t-1)}$ measures how strong is the decisional power of the secured creditors regarding the outcome of the proceeding at time (*t-1*); *Protection_Debtor*$_{(t-1)}$ measures how much the procedure facilitates the protection of the debtor's assets at time (*t-1*); *Protection_Unsecured*$_{(t-1)}$ measures how much the procedure facilitates the protection of the unsecured creditors' claims, accounting for both those born before and after bankruptcy triggering, at time (*t-1*); *Protection_Secured*$_{(t-1)}$ measures how much the procedure facilitates the protection of the secured creditors' claims, accounting for both those born before and after bankruptcy triggering, at time (*t-1*); *Ranking_Secured*$_{(t-1)}$ measures how much the procedure prioritizes the recovery of secured creditors' claims respect that of all the other categorises of stakeholders (i.e. the employees, the State, the bankruptcy practitioners, etc.) at time (*t-1*).

	Reorganization		Liquidation	
	Dependent variable: *New firm entry rate*$_t$	Dependent variable: *Lending Rate*$_t$	Dependent variable: *New firm entry rate*$_t$	Dependent variable: *Lending Rate*$_t$
	Model 1	Model 15	Model 2	Model 16
Decision_Shareholders$_{(t-1)}$	12.702*	-73.558	-0.169	35.312***
	(0.079)	(0.276)	(0.894)	(0.000)
	Model 3	Model 17	Model 4	Model 18
Decision_Unsecured$_{(t-1)}$	8.572**	-46.646	-0.102	19.751***
	(0.042)	(0.384)	(0.883)	(0.010)
	Model 5	Model 19	Model 6	Model 20
Decision_Secured$_{(t-1)}$	8.115**	-47.770	-0.088	21.615***
	(0.042)	(0.364)	(0.914)	(0.003)
	Model 7	Model 21	Model 8	Model 22
Protection_Debtor$_{(t-1)}$	11.685***	-28.904	0.130	18.218***
	(0.002)	(0.565)	(0.849)	(0.000)
	Model 9	Model 23	Model 10	Model 24
Protection_Unsecured$_{(t-1)}$	21.363***	-14.947	0.032	-14.151
	(0.001)	(0.861)	(0.987)	(0.753)
	Model 11	Model 25	Model 12	Model 26
Protection_Secured$_{(t-1)}$	15.697***	8.964	-0.537	63.428**
	(0.001)	(0.903)	(0.803)	(0.013)
	Model 13	Model 27	Model 14	Model 28
Ranking_Secured$_{(t-1)}$	7.942**	-24.500	0.018	10.335***
	(0.036)	(0.591)	(0.964)	(0.000)
Observations	91	85	89	85
Number of Countries	13	11	12	11

*p < 0.10; **p < 0.05; ***p < 0.01 – *p-value* in parentheses. For models with *New firm entry rate*$_t$ as dependent variable the R-squared ranges between 0.41 and 0.48; for models with *Lending Rate*$_t$ as dependent variable the R-squared ranges between 0.23 and 0.52.

Appendix

Table A1: Results from panel data fixed effect regression model with robust standard errors – *New firm entry rate$_t$* as dependent variable

This Table reports results from panel data fixed effect regression model with robust standard errors, where we regress the *New firm entry rate$_t$* onto the legal indexes and the control variables; *p-values* in parentheses; *t* denotes the current year; *R* refers to legal indexes capturing the legal features of the country's reorganization framework; *L* refers to legal indexes capturing the legal features of the country's liquidation framework.
New firm entry rate$_t$ is the ratio between the new firms registered and the total number of registered firms in the country at year *t*; *Decision_Shareholders$_{(t-1)}$* measures how strong is the decisional power of the firm's shareholders regarding the outcome of the proceeding at time (*t-1*); *Decision_Unsecured$_{(t-1)}$* measures how strong is the decisional power of the unsecured creditors regarding the outcome of the proceeding at time (*t-1*); *Decision_Secured$_{(t-1)}$* measures how strong is the decisional power of the secured creditors regarding the outcome of the proceeding at time (*t-1*); *Protection_Debtor$_{(t-1)}$* measures how much the procedure facilitates the protection of the debtor's assets at time (*t-1*); *Protection_Unsecured$_{(t-1)}$* measures how much the procedure facilitates the protection of the unsecured creditors' claims, accounting for both those born before and after bankruptcy triggering, at time (*t-1*); *Protection_Secured$_{(t-1)}$* measures how much the procedure facilitates the protection of the secured creditors' claims, accounting for both those born before and after bankruptcy triggering, at time (*t-1*); *Ranking_Secured$_{(t-1)}$* measures how much the procedure prioritizes the recovery of secured creditors' claims respect that of all the other categorises of stakeholders (i.e. the employees, the State, the bankruptcy practitioners, etc.) at time (*t-1*); *GDP growth$_{(t-1)}$* is the real GDP growth rate (at Purchasing Power Parity – PPP) for the country at time (*t-1*); *Inflation$_{(t-1)}$* is the inflation rate of the country at time (*t-1*); *Commercial bank branches$_{(t-1)}$* is the number of commercial bank branches per 100.000 adults in the country at time (*t-1*); *Total value of stock traded/GDP$_{(t-1)}$* is the total value of traded shares in stock market exchanges as percentage of the GDP in the country at time (*t-1*); *R&D expenditures/GDP$_{(t-1)}$* is the Gross domestic expenditures on Research and Development expressed as a percentage of the GDP in the country at time (*t-1*); *Rule of law$_{(t-1)}$* is an index assessing the perceptions of the extent to which agents have confidence in and abide by the rules of society in the country at time (*t-1*), in a scale from 1 to 100 (we apply a natural logarithm transformation); *Entrepreneur-friendliness$_{(t-1)}$* is a legal index that controls for the entrepreneur-friendliness of the entire insolvency code in the country at time (*t-1*), ranging between -1 and +1.

Dependent variable: *New firm entry rate$_t$*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14
Decision_Shareholders$_{R(t-1)}$	12.702* (0.079)													
Decision_Shareholder$_{L(t-1)}$		-0.169 (0.894)												
Decision_Unsecured$_{R(t-1)}$			8.572** (0.042)											
Decision_Unsecured$_{L(t-1)}$				-0.102 (0.883)										
Decision_Secured$_{R(t-1)}$					8.115** (0.042)									
Decision_Secured$_{L(t-1)}$						-0.088 (0.914)								
Protection_Debtor$_{R(t-1)}$							11.685*** (0.002)							

Protection_Debtor$_{L(t-1)}$								0.130						
								(0.849)						
Protection_Unsecured$_{R(t-1)}$									21.363***					
									(0.001)					
Protection_Unsecured$_{L(t-1)}$										0.032				
										(0.987)				
Protection_Secured$_{R(t-1)}$											15.697***			
											(0.001)			
Protection_Secured$_{L(t-1)}$												-0.537		
												(0.803)		
Ranking_Secured$_{R(t-1)}$													7.942**	
													(0.036)	
Ranking_Secured$_{L(t-1)}$														0.018
														(0.964)
GDP growth$_{(t-1)}$	0.054	0.049	0.053	0.048	0.054	0.048	0.057	0.051	0.057	0.049	0.058	0.046	0.057	0.049
	(0.236)	(0.301)	(0.242)	(0.307)	(0.234)	(0.307)	(0.207)	(0.294)	(0.214)	(0.261)	(0.207)	(0.298)	(0.212)	(0.300)
Inflation$_{(t-1)}$	-0.245***	-0.267***	-0.238***	-0.267***	-0.237***	-0.268***	-0.212***	-0.279***	-0.225***	-0.271***	-0.226***	-0.260**	-0.225***	-0.273***
	(0.003)	(0.006)	(0.004)	(0.003)	(0.004)	(0.004)	(0.006)	(0.008)	(0.001)	(0.002)	(0.001)	(0.012)	(0.004)	(0.007)
Commercial bank branches$_{(t-1)}$	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)	(0.002)	(0.001)	(0.003)	(0.001)	(0.004)	(0.001)	(0.003)	(0.001)	(0.003)
Total value of stock traded/GDP$_{(t-1)}$	-0.004	-0.003	-0.004	-0.003	-0.004	-0.003	-0.004	-0.003	-0.003	-0.003	-0.003	-0.003	-0.004	-0.003
	(0.588)	(0.680)	(0.578)	(0.675)	(0.585)	(0.676)	(0.572)	(0.673)	(0.740)	(0.696)	(0.729)	(0.669)	(0.579)	(0.673)
R&D expenditures/GDP$_{(t-1)}$	-2.873**	-2.624**	-2.827**	-2.620**	-2.788**	-2.624**	-2.650**	-2.654**	-2.471**	-2.637**	-2.461**	-2.619**	-2.778**	-2.643**
	(0.025)	(0.034)	(0.025)	(0.032)	(0.025)	(0.033)	(0.015)	(0.034)	(0.023)	(0.037)	(0.024)	(0.033)	(0.020)	(0.034)
Rule of law$_{(t-1)}$	-0.037***	-0.040***	-0.038***	-0.040***	-0.038***	-0.040***	-0.035***	-0.041***	-0.034***	-0.040***	-0.033***	-0.040***	-0.036***	-0.040***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Entrepreneur-friendliness$_{(t-1)}$	-4.476	-6.509	-4.210	-6.537	-4.579	-6.504	-2.453	-5.703	-3.112	-6.235	-3.282	-7.776	-3.774*	-6.174
	(0.166)	(0.121)	(0.103)	(0.122)	(0.102)	(0.144)	(0.176)	(0.215)	(0.131)	(0.147)	(0.112)	(0.302)	(0.094)	(0.160)
Constant	0.108***	0.112***	0.110***	0.112***	0.111***	0.112***	0.097***	0.112***	0.084***	0.112***	0.083***	0.114***	0.103***	0.112***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.004)	(0.001)	(0.005)	(0.001)	(0.000)	(0.000)
Observations	91	89	91	89	91	89	91	89	91	89	91	89	91	89
R-squared	0.436	0.412	0.434	0.412	0.431	0.412	0.475	0.412	0.478	0.412	0.482	0.413	0.448	0.412
Number of Countries	13	12	13	12	13	12	13	12	13	12	13	12	13	12

*** p<0.01, ** p<0.05, * p<0.1 – *p-value* in parentheses

Table A2: Results from panel data fixed effect regression model with robust standard errors – *Lending rate*$_t$ as dependent variable

This Table reports results from panel data fixed effect regression model with robust standard errors, where we regress the *Lending rate*$_t$ onto the legal indexes and the control variables; *p-values* in parentheses; *t* denotes the current year; *R* refers to legal indexes capturing the legal features of the country's reorganization framework; *L* refers to legal indexes capturing the legal features of the country's liquidation framework.
Lending rate$_t$ is the domestic credit to private sector provided by banks in percentage of the GDP in the country at year *t*; *Real interest rate*$_{(t-1)}$ is the average cost of borrowing on bank loans adjusted for the inflation in the country at time (*t-1*); *Decision_Shareholders*$_{(t-1)}$ measures how strong is the decisional power of the firm's shareholders regarding the outcome of the proceeding at time (*t-1*); *Decision_Unsecured*$_{(t-1)}$ measures how strong is the decisional power of the unsecured creditors regarding the outcome of the proceeding at time (*t-1*); *Decision_Secured*$_{(t-1)}$ measures how strong is the decisional power of the secured creditors regarding the outcome of the proceeding at time (*t-1*); *Protection_Debtor*$_{(t-1)}$ measures how much the procedure facilitates the protection of the debtor's assets at time (*t-1*); *Protection_Unsecured*$_{(t-1)}$ measures how much the procedure facilitates the protection of the unsecured creditors' claims, accounting for both those born before and after bankruptcy triggering, at time (*t-1*); *Protection_Secured*$_{(t-1)}$ measures how much the procedure facilitates the protection of the secured creditors' claims, accounting for both those born before and after bankruptcy triggering, at time (*t-1*); *Ranking_Secured*$_{(t-1)}$ measures how much the procedure prioritizes the recovery of secured creditors' claims respect that of all the other categorises of stakeholders (i.e. the employees, the State, the bankruptcy practitioners, etc.) at time (*t-1*); *Market capitalization of listed companies/GDP*$_{(t-1)}$ is the average stock market capitalization as percentage of the GDP in the country at time (*t-1*); *Total value of stock traded/GDP*$_{(t-1)}$ is the total value of traded shares in stock market exchanges as percentage of the GDP in the country at time (*t-1*); *Number of banks*$_{(t-1)}$ is the number of banks operating in the country at time (*t-1*); *Entrepreneur-friendliness*$_{(t-1)}$ is a legal index that controls for the entrepreneur-friendliness of the entire insolvency code in the country at time (*t-1*), ranging between -1 and +1.

Dependent variable: *Lending rate*$_t$

	Model 15	Model 16	Model 17	Model 18	Model 19	Model 20	Model 21	Model 22	Model 23	Model 24	Model 25	Model 26	Model 27	Model 28
Decision_Shareholders$_{R(t-1)}$	-73.558													
	(0.276)													
Decision_Shareholder$_{L(t-1)}$		35.312***												
		(0.000)												
Decision_Unsecured$_{R(t-1)}$			-46.646											
			(0.384)											
Decision_Unsecured$_{L(t-1)}$				19.751***										
				(0.010)										
Decision_Secured$_{R(t-1)}$					-47.770									
					(0.364)									
Decision_Secured$_{L(t-1)}$						21.615***								
						(0.003)								
Protection_Debtor$_{R(t-1)}$							-28.904							
							(0.565)							
Protection_Debtor$_{L(t-1)}$								18.218***						
								(0.000)						

Protection_Unsecured$_{R(t-1)}$									-14.947 (0.861)					
Protection_Unsecured$_{L(t-1)}$										-14.151 (0.753)				
Protection_Secured$_{R(t-1)}$											8.964 (0.903)			
Protection_Secured$_{L(t-1)}$												63.428** (0.013)		
Ranking_Secured$_{R(t-1)}$													-24.500 (0.591)	
Ranking_Secured$_{L(t-1)}$														10.335*** (0.000)
GDP growth$_{(t-1)}$	-1.112 (0.151)	-0.924 (0.169)	-1.114 (0.149)	-0.767 (0.205)	-1.127 (0.149)	-0.802 (0.195)	-1.097 (0.149)	-0.828 (0.191)	-1.059 (0.152)	-1.106 (0.105)	-1.040 (0.148)	-0.470 (0.190)	-1.109 (0.145)	-0.874 (0.186)
Real interest rate$_{i(t-1)}$	0.199 (0.877)	-0.179 (0.882)	0.139 (0.913)	0.387 (0.749)	0.117 (0.928)	0.202 (0.869)	0.279 (0.821)	-0.094 (0.936)	0.399 (0.757)	0.135 (0.881)	0.384 (0.764)	0.655 (0.369)	0.222 (0.856)	-0.086 (0.942)
Market capitalization of listed companies/GDP$_{(t-1)}$	-0.014 (0.686)	-0.005 (0.895)	-0.016 (0.673)	-0.006 (0.863)	-0.015 (0.682)	-0.007 (0.863)	-0.016 (0.665)	-0.007 (0.874)	-0.012 (0.707)	-0.005 (0.908)	-0.009 (0.756)	-0.035 (0.506)	-0.014 (0.686)	-0.007 (0.874)
Total value of stock traded/GDP$_{(t-1)}$	0.097 (0.266)	0.089 (0.321)	0.099 (0.252)	0.090 (0.301)	0.099 (0.250)	0.089 (0.306)	0.096 (0.260)	0.097 (0.271)	0.092 (0.299)	0.090 (0.348)	0.093 (0.291)	0.100 (0.134)	0.097 (0.257)	0.094 (0.293)
Number of banks$_{(t-1)}$	0.000 (0.219)	0.000 (0.495)	0.000 (0.217)	-0.000 (0.964)	0.000 (0.211)	0.000 (0.835)	0.000 (0.396)	0.000 (0.550)	0.000 (0.629)	0.000 (0.624)	0.000 (0.678)	0.000 (0.375)	0.000 (0.388)	0.000 (0.561)
Entrepreneur-friendliness$_{(t-1)}$	21.012 (0.672)	84.147*** (0.001)	19.794 (0.706)	82.487*** (0.001)	20.743 (0.686)	88.508*** (0.001)	19.568 (0.728)	118.376*** (0.001)	24.973 (0.639)	8.241 (0.921)	27.894 (0.598)	214.127** (0.016)	21.843 (0.679)	97.739*** (0.000)
Constant	0.849*** (0.000)	0.826*** (0.000)	0.841*** (0.000)	0.812*** (0.000)	0.840*** (0.000)	0.814*** (0.000)	0.850*** (0.000)	0.795*** (0.000)	0.833*** (0.000)	0.842*** (0.000)	0.807*** (0.000)	0.691*** (0.000)	0.844*** (0.000)	0.816*** (0.000)
Observations	85	85	85	85	85	85	85	85	85	85	85	85	85	85
R-squared	0.246	0.378	0.243	0.376	0.243	0.382	0.240	0.389	0.233	0.240	0.233	0.518	0.238	0.377
Number of Countries	11	11	11	11	11	11	11	11	11	11	11	11	11	11

*** p<0.01, ** p<0.05, * p<0.1 – *p-value* in parentheses

Concluding remarks

This thesis advances our knowledge with respect to diverse factors affecting the restructuring process of insolvent firms. Every year hundreds of thousands of firms face insolvency and enter a bankruptcy proceeding. This represents a possible natural stage of the business cycle. As such, a deep comprehension of the bankruptcy topic allows us *ex-post* in discerning the factors that facilitate the recovery process of defaulted firms, and *ex-ante* in developing preventive mechanisms for strengthening economic systems and thus prompt the economic growth.

Delving into financial and into law and economics literature, the three chapters of this thesis propose three complementary studies approaching the bankruptcy topic from diverse corners of investigation.

Chapter I examines how creditors rely on information on the causes of firm's default complementarily to financial and accounting figures for their decision on the debt restructuring plan thus determining firm's exit way from the bankruptcy procedure, i.e. reorganization, acquisition or liquidation. The results of the study demonstrate that the acknowledged role of financial and accounting factors in guiding the debt renegotiation process can differ depending on the causes of default they combine to. Indeed, causes of default and financial and accounting factors jointly concur in shaping the conditions for an acquisition, a reorganization or a liquidation as result of creditors' decisions. The study contributes to financial literature demonstrating to what extent addressing the causes of firm's default in relation to financial and accounting factors may increase our knowledge on how creditors decide in bankruptcy, and on the expected firm's exit path from the bankruptcy process. As the study is based on the in-court Italian setting, where creditors have decisional power on the restructuring plan, further research may address how information on the causes of default affects the bankruptcy process in institutional contexts where the creditors' power is more contained. Also, future studies may investigate how information on the causes of default influences informal debt renegotiation. In addition, our investigation induces to suggest that often default has a constricted origin that, if not properly tackled, expands and triggers a chain of successive complications culminating with firm's insolvency and, ultimately, with bankruptcy. Future works may thus address how original roots of default tend to evolve, in order to highlight preventive mechanisms and thus allow for prompt recovery interventions.

Chapter II deepens at the individual level of the actor in charge of enforcing the bankruptcy law, the judge, investigating the linkage between the individual characteristics of lay judges and the financial performance of the bankruptcy procedures they supervise in terms of debt recovery rates. The study provides evidence that their law, management, accounting and financial skills, their

professional experiences, their involvement in the business community are factors affecting the financial outcome of the bankruptcy process. Results also suggest that a higher gender diversity in the panel of judges may be beneficial for increasing the quality of proceedings' administration via more equilibrated decisions. The findings thus indicate that how bankruptcy codes are enforced is an essential aspect to be pondered in the study of bankruptcy systems. This work contributes to the law and finance literature highlighting to what extent the lay judges' individual features may represent an additional source of uncertainty for the insolvent firm and its creditors, and providing elements to gauge such human factor affecting the bankruptcy process. As also the bankruptcy practitioners embody an important figure involved in insolvency litigations, future works may investigate how their individual characteristics as well as the manoeuvres they undertake in researching a settlement to the firm's insolvency affect the outcome of the debt restructuring process.

Chapter III, positioning at a macro-level, elaborates a cross-country analysis of bankruptcy codes. The aim of the study is twofold. Firstly, developing an original set of legal indexes, it highlights the legal differences between reorganization and liquidation procedures. Secondly, it investigates how such distinct legal features of reorganization and liquidation procedures can concur in jointly creating an entrepreneur-friendly environment while supporting credit supply by financial institutions, two elements that previous literature places in a trade-off. As for the first, reorganization procedures appear more flexible compared to liquidation ones, and provide a higher decisional power to the shareholders, conditions that ease business reorganization. Liquidation procedures grant a wider coordination among claimholders and are more protective of the value of the firm's assets and of the secured and unsecured claims. Also, on average, secured creditors benefit from a higher rank in the repayment process. These conditions shall facilitate debt repayment and lead to higher debt recovery rates. As for the second, econometrical analysis highlights the bankruptcy provisions that positively impact onto both entrepreneurial growth and bank financing. Namely, under both reorganization and liquidation frameworks, a higher control over the decisional process to the firm's creditors (secured and unsecured) whit some decisional power to the shareholders too, a higher protection of firm's assets and of creditors' claims, and a higher rank of secured creditors in the repayment process. Indeed, such normative provisions of bankruptcy codes contribute, under reorganization procedures to increase the likelihood for business reorganization creating a more business-friendly environment, and under liquidation procedures to ease the debt recovery process while allowing for better recovery rates to creditors. The study thus illustrates possibilities for normative action to optimize the legal design of bankruptcy codes to spur both entrepreneurship and credit supply, with expected overall beneficial impacts onto economic

growth, employment and innovation. The research thus contributes to the law and economics literature developing original legal indexes that capture the different features of reorganization and of liquidation procedures, and illustrating how bankruptcy codes can be shaped to prompt entrepreneurial growth while easing access to credit. Future research may investigate how informal institutions join formal institutions, in the context of bankruptcy, in affecting entrepreneurial development and credit supply. Also, as bankruptcy reforms in more countries are reinforcing preventive mechanisms to resolve the firm's crisis at its earlier phases, further investigations may reveal how these tools affect entrepreneurial and lending decisions.

The findings of this thesis may thus assist the diverse actors involved in the insolvency affairs – the insolvent firm and its managers, the creditors, the court, the bankruptcy practitioners – in a more efficient as well as effective conduct of the restructuring process, easing the research for a shared settlement to the firm's insolvency and increasing the chances for successful firm and debt restructuring. Moreover, the results may provide serious hints to policymakers for optimizing bankruptcy systems to strengthen economic growth thus prompting employment and innovation.

This thesis, developing a comprehensive approach for the study of the bankruptcy issue, confirms as bankruptcy legislation, in regulating business insolvency, conditions also firms' entry in the market as well as lending activities, conforming as a proper tool of economic policy to strengthen the production systems and the economic fabric, and thus to enhance economic growth. The hope is that this comprehensive approach to the bankruptcy topic and the results that the investigation achieved may shed an original light in the field, inspiring the raise of promising research questions.

Résumé en français de la thèse

L'insolvabilité est un stade naturel possible du cycle de vie d'une entreprise. Le rapport de la Commission européenne estime à 200 000 le nombre d'entreprises qui font faillite chaque année dans l'UE, entraînant 1.7 millions de pertes d'emploi directes par an[91], et calcule que les frais de procédure de la faillite totale annuelle dans l'UE se montent à 895 millions d'€ pour les procédures nationales, et à 70 millions d'€ pour les procédures transfrontalières.[92] Ces chiffres soulignent l'importance vitale de la question des faillites d'entreprises et de leur sauvetage pour renforcer le système économique européen. À ce propos, suivant les mesures législatives de l'Union européenne dans le domaine de l'insolvabilité – j'insiste sur la recommandation de la Commission européenne 2014/135/EU relative à une nouvelle approche en matière de défaillances et d'insolvabilité des entreprises, et sur la récente Directive (EU) 2019/1023 du Parlement européen et du Conseil relative aux cadres de restructuration préventive, à la remise de dettes et aux déchéances, aux mesures à prendre pour augmenter l'efficacité des procédures en matière de restructuration, d'insolvabilité et de remise de dettes, et sur les amendements de la Directive (EU) 2017/1132 (Directive relative à la restructuration et à l'insolvabilité) –, ces dernières années, plusieurs pays européens ont amendé leurs lois sur la prévention des faillites, lesquelles sont davantage tournées vers des cadres de sauvetage tout en consolidant les mécanismes de prévention.

En parallèle, la recherche scientifique a longuement étudié les différents facteurs affectant le processus de restructuration de la dette de l'entreprise en situation d'insolvabilité. Une série de travaux porte sur les caractéristiques de l'entreprise en situation d'insolvabilité, et principalement sur ses facteurs comptables et financiers tels que son effet de levier, sa rentabilité, la viabilité de sa dette, ou le type d'actifs (par ex. Franks and Torous, 1994 ; Denis and Rodgers, 2007 ; Brown et al., 1994 ; Jostarndt and Sautner, 2010 ; Gilson et al., 1990). L'objectif principal de ces importantes contributions est de comprendre comment ces facteurs de l'entreprise conditionnent les chances d'une renégociation réussie de la dette.

Un deuxième courant d'investigations approfondit les recherches au niveau des acteurs impliqués dans le processus de restructuration, et présente des travaux centrés sur le rôle des juges qui tranchent les litiges en matière de faillite (par ex. Weiss and Wruck, 1998 ; Evans, 2003 ; Blazy

[91] Commission européenne, procédure 2016/0359/COD (procédure de codécision). Proposition de DIRECTIVE DU PARLEMENT EUROPÉEN ET DU CONSEIL relative aux cadres de restructuration préventive, à la seconde chance et aux mesures à prendre pour augmenter l'efficacité des procédures en matière de restructuration, d'insolvabilité et de remise de dettes, et les amendements de la Directive 2012/30/EU.

[92] Commission européenne, novembre 2016. Analyse de l'impact des options politiques pour une nouvelle initiative consistant à mettre en place un cadre juridique minimal dans le domaine de l'insolvabilité et de la restructuration. Direction générale du domaine Justice et Consommateurs, appel d'offres JUST /2015/JCOO/FWCIVI0103.

et al., 2011 ; Bernstein et al., 2019 ; Iverson et al., 2020). Ces travaux mettent en évidence la manière dont les décisions de justice peuvent affecter le déroulement des procédures d'insolvabilité et leur issue.

Un troisième courant de recherche se place en revanche à un niveau plus général et explore la manière dont les dispositions normatives concernant les lois sur la prévention des faillites ont une incidence sur les activités économiques, comme une tourmente dans les entreprises des différents pays (par ex. Armour and Cumming, 2008 ; Peng et al., 2010 ; Lee et al., 2011 ; Lee and Yamakawa, 2012 ; Estrin et al., 2017) ou les octrois de crédit de la part des établissements financiers (par ex. Scott and Smith, 1986 ; Berkowitz and White, 2004 ; Cerquiero et al., 2016).

Dans ce cadre, les trois chapitres de la thèse se placent dans les trois courants mentionnés de recherche financière. Le chapitre I examine la manière dont l'information soft (SI) sur les causes de la défaillance de l'entreprise complète l'information hard (HI) – données comptables et financières – et détermine la décision du créancier de voir l'entreprise sortir de la procédure de faillite (réorganisation, acquisition ou liquidation). La littérature financière identifie HI et SI comme les deux types d'information par lesquels les créanciers réduisent l'asymétrie d'accès à l'information avec les débiteurs ; cependant, la littérature sur la faillite indique que c'est surtout le premier type qui préside aux choix des créanciers en matière de faillite. Le chapitre II examine le lien entre les caractéristiques individuelles des magistrats non professionnels et le rendement financier des procédures de faillite qu'ils supervisent en termes de taux de recouvrement des créances. En effet, plusieurs travaux rapportent des décisions de justice à des mesures de rendement du processus de faillite ; cependant, cette littérature omet d'expliquer ce qui guide les décisions des juges, et comment cela influe à son tour sur le résultat du processus de faillite en termes financiers. Le chapitre III examine la manière dont des particularités juridiques distinctes des procédures de réorganisation et de liquidation peuvent concourir à stimuler à la fois le développement de l'entreprise et le financement bancaire. En effet, la littérature précédente envisageait plutôt un compromis entre les systèmes de faillite favorables aux entrepreneurs pour stimuler l'entreprenariat, et les prêts bancaires. Cependant, ces analyses antérieures se limitaient principalement au niveau du cadre d'insolvabilité de l'ensemble du pays, sans approfondir les différences qui apparaissaient entre les dispositions caractérisant les procédures de réorganisation et les procédures de liquidation, ni leurs différents effets sur l'entreprenariat et sur l'offre de crédit.

Aussi, tout au long de ces trois chapitres qui adoptent une approche quantitative, la thèse se propose de répondre aux questions suivantes :

1) Comment l'information soft sur les causes de la défaillance de l'entreprise influe-t-elle sur la sortie de celle-ci de la procédure de faillite découlant de la décision des créanciers ?

2) Comment les caractéristiques individuelles des magistrats non professionnels influent-elles sur le rendement financier du processus de faillite, en termes de taux de recouvrement des créances ?

3) Quelles sont les particularités juridiques distinctes des procédures de réorganisation et de liquidation qui permettent de stimuler à la fois le développement de l'entreprise et l'offre de crédit ?

Concernant la première question, comme nous l'avons dit, la littérature financière reconnaît dans l'information hard (HI) et dans l'information soft (SI) les deux types d'information par lesquels les créanciers limitent l'asymétrie d'accès à l'information avec les débiteurs. Kahl (2002) allègue que dans le contexte de restructuration de la dette, les décisions des créanciers dépendent du type d'information dont ils disposent. Plus les créanciers ont d'informations, plus leurs décisions seront efficaces, soutenant ainsi l'activité de l'entreprise en exploitation, en présence d'opportunités de croissance potentiellement attractives, ou à défaut en liquidant. L'exposé présenté au chapitre I allègue que dans le contexte de la faillite, les causes de la défaillance d'une entreprise sont de type SI, et qu'elles revêtent une importance significative utile aux créanciers afin de déterminer la viabilité économique de l'entreprise en difficulté. Les causes de la défaillance de l'entreprise apparaissent en effet dans le dossier de faillite à la suite de l'audit des liquidateurs judiciaires nommés par le tribunal. La littérature sur la faillite a identifié plusieurs facteurs HI qui influeraient sur le processus de restructuration de la dette, tels que l'effet de levier de l'entreprise (Franks and Torous, 1994 ; Jostarndt and Sautner, 2010), sa rentabilité (Denis and Rodgers, 2007 ; Blazy et al., 2014), la viabilité de sa dette (Brown et al., 1994), le type d'actifs (Gilson et al., 1990), ainsi que les performances sectorielles (Denis and Rodgers, 2007 ; Collett et al., 2014). Avançant une série d'hypothèses, l'exposé soutient que le rôle des facteurs HI dans la conduite des processus de restructuration de la dette, tel que reconnu dans la littérature, peut différer selon les causes de la défaillance (SI) avec lesquelles ils se combinent. Une analyse économétrique a été menée sur un ensemble de données de petites et moyennes entreprises italiennes qui ont fait face au processus de faillite entre 2011 et 2016. Les causes de défaillance qui les affectent ont été extraites en analysant manuellement les documents juridiques des procédures. Les résultats montrent que les créanciers s'attaquent aux causes de la défaillance de l'entreprise (SI) dans leur décision concernant le plan de restructuration de la dette en complément des données financières et comptables (HI), et que les causes de défaillance, avec les facteurs financiers et comptables, concourent conjointement à déterminer les conditions d'une réorganisation, d'une acquisition ou à aboutir à une liquidation. En effet, les résultats montrent que les conditions dans lesquelles les créanciers prennent conscience

des causes de la défaillance de l'entreprise peuvent prévenir une liquidation à l'issue du processus de faillite. De plus, les causes de défaillance ont différents impacts sur la probabilité d'une future réorganisation ou acquisition. Par exemple, lorsque des erreurs stratégiques se manifestent parallèlement à un effet de levier plus important, les probabilités d'une prise en compte de l'acquisition augmentent, considérant que cela n'a pas d'incidence sur la probabilité d'aboutir à un réorganisation ; en revanche, les problématiques dans le système de production compromettent l'effet de rentabilité de l'entreprise et réduisent les chances d'aboutir à un réorganisation, alors que cela n'a pas d'incidence sur la probabilité d'acquisition. Ce travail apporte sa contribution à la littérature financière en montrant dans quelle mesure la question de la synergie entre les SI sur les causes de défaillance de l'entreprise et ses HI peut augmenter notre connaissance des motifs qui poussent les créanciers à opter pour la faillite, et des voies de sortie du processus de faillite attendues. Les résultats de la recherche peuvent aider les dirigeants des entreprises en situation d'insolvabilité à identifier les circonstances dans lesquelles la probabilité d'activité de l'entreprise en exploitation est plus élevée, en relation avec les données comptables et financières effectives de l'entreprise et les causes de défaillance. Cela peut augmenter leurs chances d'obtenir le soutien des créanciers en vue de la poursuite des activités pendant la liquidation judiciaire. Les résultats peuvent également guider les liquidateurs judiciaires et le tribunal dans la définition de la voie de sortie du processus de faillite la plus appropriée, en liaison avec l'état effectif de difficulté. De plus, comme Blazy et al. (2013) ont montré que les taux de recouvrement des créanciers sont en moyenne plus élevés dans la situation de réorganisation des activités que dans la situation de liquidation, les résultats fournissent aux créanciers des aperçus valables des conditions dans lesquelles l'activité de l'entreprise en exploitation est la plus probable et en conséquence, indirectement, où l'on s'attend à des taux de recouvrement plus élevés. Tout cela facilite la recherche d'une résolution partagée de la crise de l'entreprise, permet un déroulement plus efficient et plus efficace du processus de faillite, et réduit sa durée et ses coûts.

La deuxième question de la recherche vise à introduire dans la discussion ce courant de la littérature juridique et financière sur la faillite qui étudie le rôle tenu par le tribunal dans la résolution du processus de restructuration de la dette. En effet, considérant le rôle central du tribunal dans la procédure de faillite, plusieurs travaux examinent de quelle façon les décisions des juges sont en lien avec l'issue du processus de restructuration de la dette. Bernstein et al. (2019) étudient comment les décisions des juges de convertir les poursuites en cas de faillite du *Chapter 11* en mise en faillite pour liquidation du *Chapter 7* ont un impact sur l'attribution et l'utilisation consécutive des actifs de l'entreprise en faillite. Weiss et Wruck (1998) décrivent comment le résultat du processus décrit au *Chapter 11* de la loi américaine peut avoir une forte incidence sur les

délibérations des juges, concluant que le système de faillite devrait protéger la valeur des actifs du débiteur également contre les décisions erronées des juges. Diversement, Evans (2003) démontre que les mesures discrétionnaires des juges ne sont que quelques fois liées aux dispositions du *Chapter 11*. Iverson et al. (2020) rapportent que l'inexpérience judiciaire des juges a un impact négatif sur les taux de recouvrement des créanciers. Sur le front européen, Rodano et al. (2016), ainsi que Melcarne et Ramello (2020), discutent des effets bénéfiques de tribunaux de faillite plus efficaces, au niveau de l'Italie. Blazy et al. (2011) montrent que le pouvoir décisionnaire attribué aux juges par le code des faillites français conduit ces derniers à privilégier la faillite en sauvegardant les emplois, même si cela se fait en partie au détriment du recouvrement de la créance. Cependant, comme nous l'avons dit, cette ligne d'investigation n'explique pas, dans un certain sens, ce qui guide la prise de décision des juges, et qui affectera en conséquence le rendement financier du processus de faillite. Néanmoins, certains auteurs dans le domaine du droit (par ex. Sharfman, 2005 ; Rachlinski et al., 2006 ; Wistrich et al., 2015) allèguent que la décision des juges de mise en faillite est guidée par des prises de position individuelles qui portent atteinte au processus cognitif par lequel ils interprètent une affaire (cependant, ils ne relient pas ces prises de position individuelles au rendement financier du processus de faillite).

Considérant ces importantes contributions, l'exposé proposé au chapitre II de la thèse franchit une étape supplémentaire en reliant une série de caractéristiques individuelles des magistrats non professionnels – à savoir leur instruction, leurs compétences dans un domaine, leurs expériences professionnelles, leur implication dans le milieu des affaires – au rendement financier des procédures de faillite qu'ils supervisent, en termes de taux de recouvrement des créances. Le lien entre ces traits individuels des juges et le rendement financier de la faillite représente, à ma connaissance, un élément de nouveauté pour la littérature. Aussi, par rapport à des travaux antérieurs, l'exposé suggère que le facteur humain représenté par les caractéristiques individuelles des juges se présente comme une source additionnelle d'incertitude pour l'entreprise en situation d'insolvabilité et pour ses créanciers, qui peut affecter la prise de décision du plaignant concernant la faillite.

La recherche est axée sur un ensemble de données de 223 procédures d'insolvabilité françaises et sur les profils individuels de 61 magistrats non professionnels qui ont tranché ces questions sur la période 2006-2012. Une analyse manuelle des documents de faillite et la collecte d'informations sur les profils des juges, s'appuyant sur une analyse économétrique, apportent la preuve que les facteurs individuels des magistrats non professionnels ont une incidence sur le taux de recouvrement des créances. Le taux de recouvrement augmente de manière significative lorsque les juges possèdent des compétences spécifiques dans le domaine financier/comptable et des

compétences générales de management, lorsqu'ils ont eu des expériences professionnelles dans des organismes à but lucratif ainsi que dans des entreprises qui ont déposé le bilan, et lorsqu'ils sont plus interactifs en termes de réseautage professionnel numérique. À l'inverse, le taux de recouvrement diminue de manière significative lorsque les juges possèdent des compétences juridiques spécifiques, lorsqu'ils ont eu des expériences professionnelles dans des organismes à but non lucratif ainsi que lorsqu'ils montrent une plus grande proximité avec le milieu des affaires en termes de mandats détenus dans diverses organisations. Les résultats suggèrent également qu'une plus forte présence de femmes dans le tribunal peut être bénéfique pour augmenter la qualité de la mise en œuvre des procédures, via des décisions plus équilibrées.

Les résultats confirment qu'un examen micro-économique de la magistrature est requis afin d'évaluer pleinement la performance d'un système des faillites. Les résultats fournissent ainsi des éléments aux dirigeants d'entreprise, aux créanciers, aux liquidateurs judiciaires, afin d'évaluer les traits humains susceptibles d'influencer les processus de faillite. Une prise de conscience plus approfondie des facteurs humains ayant une incidence sur les procédures d'insolvabilité peut faciliter la confrontation entre les différentes parties, et augmenter les chances de réussite d'une renégociation de la dette. En outre, le processus cognitif des magistrats non professionnels en matière de facteurs individuels affectant potentiellement les décisions peut les amener à rendre des jugements plus adéquats concernant le cas concret. Tout cela est censé augmenter l'efficacité et l'efficience du processus de faillite. De plus, l'identification de ces facteurs des juges est une opportunité pour le législateur de concevoir un système des faillites permettant de tirer profit des facteurs qui ont des impacts bénéfiques sur les performances.

Par rapport aux importantes contributions précédentes, cette étude propose une nouvelle perspective d'investigation qui transcende les dispositions légales des codes d'insolvabilité, en formant le pouvoir discrétionnaire de la justice afin qu'il approfondisse le niveau individuel de l'acteur chargé de faire respecter la loi, à savoir le juge. La recherche apporte sa contribution à la littérature juridique et financière sur les faillites grâce au micro-examen d'un acteur aussi central, suggérant que dans l'étude du système des faillites, il conviendrait de prendre en compte non seulement la manière dont sont élaborées les lois sur la prévention des faillites, mais également la manière dont elles sont appliquées.

Concernant la troisième question de la recherche, l'exposé présenté au chapitre III vise à entrer dans le débat en cours dans la littérature sur la faillite, portant sur le compromis entre un système des faillites favorable à l'entrepreneur pour stimuler l'entreprenariat et l'octroi de crédits de la part des banques. En effet, plusieurs travaux suggèrent que le système des faillites favorable à l'entrepreneur a une incidence positive sur le développement de l'entreprise, et abaisse les barrières

d'entrée pour la création de nouvelles affaires grâce à la réduction du risque de baisse associé à la défaillance (Fan and White, 2003 ; Armour and Cumming, 2008 ; Peng et al., 2010 ; Lee et al., 2011). Cependant, d'autres travaux soulignent en parallèle que ces mesures moins contraignantes conduisent à une augmentation de la charge des risques sur les établissements de crédit, lesquels répondent en durcissant les conditions d'accès au crédit, ce qui à son tour se répercute négativement sur le développement de l'entreprise (Scott and Smith, 1986 ; Berkowitz and White, 2004 ; Araujo et al., 2012 ; Cerquiero et al., 2016). On attend alors de la loi sur la faillite qu'elle trouve la meilleure représentation, permettant d'équilibrer ces deux forces apparemment antagonistes. Cependant, comme l'ont souligné Blazy et al. (2013), la plupart des travaux antérieurs restent au niveau du cadre d'insolvabilité de l'ensemble du pays, et il manque la granularité propre aux lois sur la prévention des faillites qui sont généralement composées d'un ensemble de différentes procédures, certaines dédiées à la réorganisation des entreprises et d'autres à la liquidation (La Porta et al., 1998 ; Estrin et al., 2017).

Morrison (2007) indique que les entrepreneurs prennent plutôt position pour la réorganisation de l'entreprise et les créanciers pour sa liquidation. Dans le même ordre d'idée, Estrin et al. (2017) suggèrent que dès lors que les entrepreneurs et les créanciers sont sensibles aux différents éléments de la loi sur la faillite, une étude granulaire des lois sur la prévention des faillites permettrait de définir des dispositions légales optimisées afin de stimuler à la fois l'entreprenariat et l'offre de crédit.

Suivant ces contributions, la troisième étude de la thèse soutient qu'une telle étude granulaire des lois sur la prévention des faillites nécessite d'analyser dans quelle mesure les dispositions portant sur la réorganisation versus la liquidation diffèrent, et ont une incidence différente selon qu'il s'agit de l'entreprenariat ou du financement bancaire. Aussi le but de cette contribution est-il double. Premièrement, la recherche développe des indices juridiques originaux qui reprennent les particularités juridiques des différentes procédures de réorganisation et de liquidation comprises dans les lois nationales sur la prévention des faillites. Dans ce but, l'étude a inclus un groupe de travail de liquidateurs judiciaires et d'universitaires dans 12 pays d'Europe et aux Etats-Unis, avec le soutien d'Insol Europe (organisation européenne de professionnels spécialistes de l'insolvabilité). Cette première partie du travail a débouché sur la production d'une Analyse en Composantes Principales qui cartographie les différences entre les procédures de réorganisation et les procédures de liquidation des pays étudiés. Les procédures de réorganisation apparaissent plus souples et réservent un fort pouvoir décisionnaire aux actionnaires comparativement aux procédures de liquidation, conditions qui facilitent la réorganisation de l'entreprise. En revanche, les procédures de liquidation s'avèrent être plus protectrices de la valeur

des actifs de l'entreprise et des créances garanties et non garanties, avec des créanciers garantis qui bénéficient d'un statut plus élevé (en moyenne) que ceux des autres classes de plaignants. De plus, elle offre une plus grande coordination entre les actionnaires, conditions qui devraient faciliter le processus de remboursement et permettre un taux plus élevé de recouvrement des créances.

Deuxièmement, l'analyse économétrique met en œuvre des indices juridiques dans une analyse transnationale des lois sur la prévention des faillites pour la période 2007-2017, pour expliquer le développement de l'entreprise et l'offre de crédit des banques. Les résultats montrent que les cadres tant de la réorganisation que de la liquidation qui donnent un plus grand contrôle sur le processus décisionnaire des créanciers de l'entreprise (garantis et non garantis) et réservent quelques pouvoirs décisionnaires également aux actionnaires, qui renforcent la protection des actifs de l'entreprise et des créances des créanciers, qui procurent des créanciers garantis bénéficiant d'un statut renforcé dans le processus de remboursement, permettent aussi bien d'inciter le développement de l'entreprise que de stimuler le financement bancaire, sans porter préjudice aux créanciers ou au débiteur. Au titre des procédures de réorganisation, de telles dispositions normatives contribuent à façonner un environnement plus favorable aux affaires en rendant possibles des perspectives de réorganisation de l'entreprise, et au titre des procédures de liquidation, elles permettent de faciliter le processus de recouvrement de la dette tout en reconnaissant aux créanciers des taux de recouvrement plus élevés. L'effet produit est positif, tant sur le développement de l'entreprise que sur les prêts bancaires.

L'analyse converge vers la discussion d'Eklund et al. (2020) en ce que le droit de la faillite ne se limite pas à réguler la défaillance des entreprises, mais constitue bien un outil efficace pour la politique économique afin de renforcer la croissance économique. Les résultats montrent ainsi que la dissection des effets distincts des cadres de réorganisation et de des cadres de liquidation permet d'identifier des dispositions normatives qui concourent à stimuler le développement de l'entreprise et l'offre de crédit, dépassant le compromis susmentionné envisagé dans la littérature précédente (par ex. Armour and Cumming, 2008).

À ma connaissance, cette étude qui ouvre la boîte des cadres de l'insolvabilité des pays est la première à réaliser une analyse transnationale des différents types de procédures de réorganisation et de liquidation contenues dans les lois sur la prévention des faillites de plusieurs pays. La recherche apporte sa contribution à la littérature juridique et économique en développant des indices juridiques originaux qui reprennent les différences entre les procédures de réorganisation et les procédures de liquidation, identifiant les caractéristiques des lois sur la prévention des faillites qui sont bénéfiques pour stimuler le développement de l'entreprise et pour faciliter l'accès au crédit. L'étude participe ainsi au débat sur la vision de l'entreprenariat basée sur les institutions, tel que

dépeint dans le contexte des faillites dans les investigations d'Armour et Cumming (2008), Peng et al. (2010), Lee et al. (2011). Les résultats pourraient représenter de sérieux indices pour les décideurs politiques dans le sens d'une optimisation des lois sur la prévention des faillites, afin de promouvoir l'esprit d'entreprise et d'encourager l'octroi de crédits, donnant des effets bénéfiques attendus pour la croissance économique, l'emploi et l'innovation.

Les trois chapitres illustrent également de futures avancées prometteuses dans la recherche.

Pour conclure, une compréhension profonde du thème de la faillite s'avère être vitale à deux niveaux principaux. *Ex-post*, si l'on augmente nos connaissances dans ce domaine, il sera plus aisé de discerner les facteurs qui facilitent le processus de recouvrement de nombreuses entreprises qui font face chaque année à cette étape naturelle de leur cycle de vie. *Ex-ante*, parce qu'en saisissant ce qui caractérise la défaillance de l'entreprise, il sera possible de concevoir des mécanismes de prévention visant à renforcer les systèmes économiques et à stimuler de ce fait la croissance économique.

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Estratto per riassunto della tesi di dottorato

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***Titolo della tesi*:**

Fostering the entrepreneurial development through the bankruptcy institution: an empirical approach for European countries

Abstract

La tesi propone uno studio comprensivo sul tema dell'insolvenza d'impresa, evidenziando le forze che, su diversi piani, guidano il processo di ristrutturazione delle aziende in crisi, condizionando le attività economiche. Una conoscenza approfondita di tale tema consente *ex post* di discernere i fattori che favoriscono il risanamento aziendale, ed *ex ante* di sviluppare meccanismi preventivi per rafforzare il tessuto economico-produttivo e quindi stimolare la crescita economica. Approfondendo la letteratura finanziaria e di *law and economics*, i tre capitoli di questa tesi analizzano il tema dell'insolvenza d'impresa attraverso altrettante prospettive d'indagine. Il Capitolo I studia come i creditori delle imprese insolventi vagliano le cause della crisi aziendale congiuntamente ai dati finanziari e contabili per la loro decisione sul piano di ristrutturazione del debito, determinando così la via d'uscita dell'impresa dalla procedura concorsuale, ovvero continuità diretta, continuità indiretta o liquidazione. Il Capitolo II, scavando al livello dell'attore che veicola la legge fallimentare, il giudice, indaga su come le caratteristiche individuali dei giudici consolari incidono sul risultato finanziario delle procedure concorsuali che amministrano in termini di tassi di recupero dei crediti. Il Capitolo III, attraverso un'analisi multipaese delle discipline sull'insolvenza d'impresa e sviluppando un insieme inedito di indici legali, individua le distinte disposizioni normative delle procedure di riorganizzazione e di liquidazione che concorrono a stimolare congiuntamente lo sviluppo imprenditoriale e l'erogazione di credito bancario. I risultati di questa dissertazione dimostrano come i diversi fattori che guidano il processo di ristrutturazione aziendale interagiscono, influenzando le probabilità di riuscita del risanamento dell'impresa e agevolando il recupero dei crediti. Inoltre, confermano come la disciplina sull'insolvenza d'impresa rappresenti un efficace strumento di politica economica per rafforzare il sistema economico-produttivo di un Paese. Tali risultati possono quindi supportare sia i diversi attori coinvolti nelle procedure concorsuali in una gestione più efficace ed efficiente del processo di ristrutturazione aziendale, favorendo quindi la definizione di adeguate soluzioni alla crisi d'impresa, sia il legislatore ai fini dell'ottimizzazione della disciplina sull'insolvenza d'impresa per rafforzare il tessuto economico-produttivo e quindi stimolare la crescita economica. Questa tesi contribuisce alla letteratura finanziaria e di *law and economics* avanzando un approccio comprensivo per lo studio del tema dell'insolvenza d'impresa, illustrando i fattori che la caratterizzano e suggerendo i mezzi per affrontarla.