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Severity of the Voting Rules in Bankruptcy

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Abstract: This article evaluates the voting conditions in bankruptcy using a sample of 92 countries. In general, the bankruptcy laws of German and French legal origin have the less stringent voting rules. The Nordic group of countries is in the middle. The most severe rules are encountered in the common law countries. In addition**,** the voting rules are not only important for the decision process, but also for the achievement of the *ex post* efficiency *i.e.* saving only the financial distressed firms which are economically efficient.

Introduction

In the corporate bankruptcy literature, a financial distressed firm can usually address the settlement of the claims by two means (Berkovitch and Israel, 1998). Following an out-of-court approach, the firm may try to reschedule or renegotiate its debt and thus avoiding the costs associated to the legal procedures. The creditors' debt may also be settled by liquidating the firm's assets partially or entirely as a going concern. According to the content of the bankruptcy law, a formal reorganization procedure may permit the continuation of its activity under the provisions of a plan or agreement approved by the Court. In general, the creditors have the possibility to vote for the plan or the proposal.

A bankruptcy voting rule requires the formation of a certain numerical majority of creditors that must hold a certain amount of the total debt. The first constraint is recognized as the numerosity requirement while the second restriction represents the qualification condition. The voting process can be held in one class or multiple classes of creditors. When both constraints are satisfied, the plan can be considered as accepted by the creditors. Such rules are characterized by different degrees of severity. The severity or the hardness of a rule can be established if we take into account the threshold values of the constraints that the voters have to exceed in order to impose their interest. Hence, the higher the threshold values are, the higher the severity degree of the rule is. A reorganization plan or an amicable proposal would be difficult to be accepted in the case of more severe rules which need larger coalitions of creditors. In fact, it is possible that the saving of an efficient firm through the reorganization procedure to be rejected due to the rules severity. Nevertheless, the voting rules that govern the claimants' decision differ across countries. They are not the same and their degree of severity can change when a new bankruptcy law is adopted.

Since 1990, more than 60 countries adopted new bankruptcy laws that integrated a reorganization procedure similar to the Chapter 11 of the U.S. Federal Reform Bankruptcy Act of 1978 or a certain legal procedure that seeks the survival of the distressed firms. The new laws also provide voting rules with different severity. For instance, in 1992 a restructuration plan in Peru could be accepted by the creditors if it received the consent of the majority of the creditors whose claims represented more than 70% of the total debt. The voting rule became less severe under the 2002 new law in which the reorganization plan must be voted by a group of creditors that detains at least two thirds of the total value of the claims.

A decrease of the severity can also be found in the case of other countries such as the Czech Republic, Latvia or Lithuania.

The purpose of this article is to assess the severity of the voting rules in bankruptcy. It is the first study that treats the hardness of the rule on a global scale using an original database that encompasses the voting rules and the voting conditions from 92 countries. We develop a simple methodology of measuring the severity which is based on the threshold values of the voting constraints.

The bankruptcy literature lacks a general study that compares the voting rules between different national laws. Our research fills this gap and also provides a simple criterion to confront the rules which could be used in other fields such as the politics science or the corporate finance. However, most of the papers that treat the optimality of the bankruptcy law omit the importance or the existence of the voting rules. [1] The necessity of having voting rules or the level of hardness should be considered in the determination of the optimal bankruptcy law. The voting rules and the voting conditions are key components of the law. The power decision of a coalition of creditors will be different in countries that prefer more severe rules. If the court does not have the legal right of surpassing the voting result, decreasing the rule hardness could be a solution for the firm survival. Moreover, the assessment of the creditor friendliness of the law usually neglects the characteristics of the voting rule. This paper demonstrates that the degree of hardness could be used in attesting the bankruptcy law's orientation along with other indicators like the creditor rights index of La Porta et al. (1998).

This article is organized as follows. The first section describes the methodology of constructing an indicator that can measure the rules severity. Section 2 presents our database and the variables related to the voting conditions of the unsecured creditors. Section 3 treats the case of the secured creditors' voting rules. In section 4, we demonstrate how the modification of the voting rule can influence the recovery rate using a standard case of business. The last section summarizes and concludes.

1 Voting Threshold Index

In bankruptcy, the voting process usually requires the formation of a certain majority in number and/or a certain majority in terms of the total debt value. According to Brahan and

[1] We refer here to Baird (1986), Berkovitch, Israel and Zender (1998), Broadie, Chernov and Sundaresan (2007), Hart (2000).

Steffen (2003), the first one is entitled the numerosity requirement while the second condition makes the majority to be qualified. Hence, a reorganization plan, a proposal or an amicable settlement may be accepted by the creditors if there is a majority that respects the numerosity requirement and/or the qualification condition. For example, a rehabilitation plan in Japan is approved when a majority in number of the voting right holders detains not less than half of the debt. If we consider the case of Belarus, there is no numerical constraint but only the qualification condition which represents half of the total amounts of votes. The both thresholds of the voting rules are specified in the national bankruptcy law or act. [2]

We will define the voting threshold index (*VTI*) as the sum between the voting threshold number (*VTN*) associated to the numerosity requirement and the voting threshold value (*VTV*) related to the minimum amount of debt that the winning majority must satisfy. The basis of this indicator is to allow an assessment of the voting rule hardness related to the approval of an agreement or a reorganization plan. In the case of Japan, the voting index will be 1 given that the *VTN* will be 0.5 and the *VTV* will be equal to 0.5. The *VTI* of Belarus is 0.5 which is less than the Japanese index implying a less severe rule. At a first glance, this index proves some legitimacy and a power of interpretation. However, the comparison between the rules needs a certain legal context in which the claimants vote. We will further explain under what circumstances the *VTI* is measured.

The voting index concerns only the public procedures that take place in the presence of the Court. Thus we exclude the informal procedures that can save a firm because they can imply a direct negotiation with the creditors without using any voting rule. The index concerns the approval of the reorganization plan or the acceptance of the proposal. The legal validation of the agreement or plan usually lies in the Court's hands. Even if the plan is voted, a simple discrimination against a creditor or a risk of diminishing the assets value can force the judge to reject it. The Court has sometimes a cram-down right which allows for overcome the voting result. The quality of the plan or the judge power can influence the outcome of the procedure, but the purpose of this study is to analyze the severity of the voting rules.

Moreover, some insolvency law imposes different voting thresholds for the secured creditors. In other cases, such creditors are excluded from voting or they can obtain the voting right if they accept to lose the preferential position of their claim. They can also be treated as unsecured for the part of their debt which is not covered by the collateral.

[2]The first rule is included in the Japanese Civil Rehabilitation Act of 1999. The second rule can be found in the Law of the Republic of Belarus on Economic Insolvency 2012

Nonetheless, we observed that some bankruptcy codes provide two voting rules with distinct constraints. Normally, the reasoning of having a second rule is to avoid the plan obstruction by a creditors' minority. It also offers some protection to creditors that hold large part of the total debt and have a common interest regarding the firm future. In the voting process of bankruptcy, a minority of creditors can block the interest of a larger creditor *i.e.* the creditor whose claim is the highest. If they hold the right amount of debt and/or they count the necessary number of voters that make the legal voting thresholds unreachable, the larger creditor will have to comply to their decision unless the judge can overturn the voting result. However, some bankruptcy laws provide different tools in order to avoid the obstruction of a plan or to protect the best interest of the larger creditor(s) such as the cram-down procedure or the voting right withdrawal of the unimpaired creditors. Attaching a second rule can also be helpful in this matter. For instance, in Colombia, a reorganization plan is accepted if it receives the favorable vote from the majority of creditors' classes. [3] If there are only two classes, the decision is given by the class that holds the highest value of the debt. A coalition of creditors can impose its preference if it holds at least 3 quarters of the total debt and thus eliminating the voting in classes. Another example of anti-obstruction voting rule is encountered in Switzerland where a restructuration plan can also be accepted by a minority in number of creditors that represent at least 25% of the total number of creditors but which must hold at least 75% of the total debt. [4] In general, the anti-obstruction rules are characterized by a lower *VTN* and a higher *VTV* compared to the first voting rule of the law.

An interesting feature of the voting rule in bankruptcy is to associate the threshold values to the plan expected payments. It is basically a Nordic characteristic. A plan or a proposal with a lower payment can be accepted by the claimants if the firm has a much lower expected liquidation value. Given that such plans imply an important loss for creditors, it would be reasonable to impose more severe voting rules than in the case of a higher payment. In this sense, some Nordic bankruptcy legislations propose a second voting rule that relates to the content of the plan. In Norway and Sweden, a reorganization plan that offers a payment inferior to 50% of the debt can be approved by the unsecured creditors if they can form a majority that represents 75% of the total number of creditors which hold 75% of the total

[3] According to the Law of Colombia number 1116 of 2006.
[4] According to the Federal Act on Debt Enforcement and Bankruptcy of Switzerland updated on January 1, 2012.

debt. [5] Nevertheless, the Norwegian law forbids a payment threshold lower to 25% of the debt.

2 Unsecured Creditors and the Voting Index

2.1 Data and Variables

We develop a database with information from 92 countries. The information concerning the voting rules was collected directly from the national bankruptcy law or it was provided by local law firms or the ministry of justice of the country included in the sample. We also use other bankruptcy researches in order to improve its quality *e.g.* Restructuring and Insolvency and the *Restructuring and Insolvency multi-jurisdictional guide* of the Practical Law Company. The name of the national laws and the additional sources are detailed in the Data Appendix. All the countries have an insolvency framework that offers the distress firms the possibility to make an arrangement with the creditors. Not all of them have specified reorganization law like the Chapter 11 of the United States, but their laws encompass a formal procedure of settlement or proposal which can be used in the same terms as a reorganization procedure. In the case of countries with two reorganization procedures or two bankruptcy laws, we selected the law which doesn't apply only for a certain type of firm. The procedure similar to Chapter 11 was preferred. In our database, 8 national laws propose two voting rule. We selected the rules that doesn't apply to the anti-obstruction perspective (5 laws) and that assumes a payment of the plan superior to 50% of the total debt (3 laws). [6]

Nevertheless, 3 insolvency laws are based on particular voting structures which make them difficult to be treated as the other rules. In the case of Greece[7], a reorganization plan is accepted if the creditors that voted in favor hold at least 60% of the total value of the debt and at least 40% of the secured claims are included in the 60% threshold. This value interaction between different types of creditors hampers the establishing of a *VTI*. For instance, if the 40% of the secured debt represents more than 60% of the total debt, the vote of unsecured creditors is worthless. Thus, this voting rule adapts to the creditors' structure. In the sample,

[5]The Norwegian voting conditions are governed by the Law No. 58 relating to debt negotiation and bankruptcy of 1984 and the Law No. 59 of Claims of 1984. The Swedish voting rule is mentioned in the Business Reorganization Act of 1996.

[6]In Uruguay, according to the law No. 18387 of 2008, a reorganisation plan can be accepted by a group of creditors that hold at least half of the total debt. The second rule implies the acceptance of the plan by a coalition of creditors that holds at least 25% of the debt if the plan offers a full recovery of the debt. We retained the first rule in our sample.

[7]According to the Bankruptcy Code of Greece of 2007.

we treated the VTV of Greek unsecured creditors equal to 0.60. In the case of Georgia, a rehabilitation plan is adopted by simple majority of votes of the Conciliation Council. This Council is formed by three members: the first member is selected by the debtor, the second one at the creditors' meeting and the third member by the agreement of the first two members[8]. Given that the creditors' member is voted by a simple majority of votes, we treated the Georgian *VTN* equal to 0.5. Another interesting approach is encountered in Slovenia[9]. If the creditors' debt is converted in capital shares with the purpose of the financial restructuration then the amount of such claim is weighted with a certain quota in the voting process. For simplicity, we treated the Slovenian law in the absence of a debt conversion. Along with the voting thresholds, other types of information could be extracted from these laws.

As attested by La Porta et al. (1998), the legal origins of the commercial code or the company law permit a certain differentiation of the amount of rights granted to creditors in bankruptcy.[10] While the common law countries are usually characterized by higher creditor rights indexes, the laws with French origin provide on average the weakest protection for creditors. Along with the German and the Nordic civil laws, such origins are significant not only for the distribution of rights, but also for the financial development (Beck, Demirgüç-Kunt and Levine, 2003), for the banks behavior in relation with lending (Davydenko and Franks, 2008) and for the degree of innovation incurred by firms (Acharya and Subramanian, 2009). Thus, we expect that legal origins should play a role in establishing the severity of a voting rule.

However, we will consider the insolvency legal origin as in Djankov et al. (2008). This decision is based on two major reasons. Firstly, the hardness of the voting rule is included in this law. Secondly, the bankruptcy laws can be renewed or suffer modifications through certain amendments independently of the content of the commercial code or company law. In fact, adopting a new bankruptcy status as in the case of most of the ex-socialist

[8]According to the Law of Georgia on Insolvency Proceedings (2007), if there is a failure in selecting the members, the respective member will be appointed by the judge. The third member can also be a non-creditor persona.
[9]According to the Financial Operations, Insolvency Proceedings and Compulsory Dissolution Act of 2007
[10]The creditor rights index has a range from 0 to 4. A score of one is accorded for each valid aspect of the followings: (1) there is no automatic stay on the secured assets in the case of a reorganization procedure, (2) the secured creditors are first to be paid in bankruptcy, (3) the creditors' consent is required to file for reorganization and (4) the management does not retain their position during bankruptcy. (La Porta et al., 1998)

countries or keeping the same judicial context like some of the common law countries may lead to voting rules whose severity comes from the origin basis.

Nevertheless, these origins may translate the preference of the law in favor of the debtor or creditors interests. According to the average results of the creditor rights index, the French civil law countries prove to have a pro-debtor orientation while the English and the German legal systems are recognized as creditor friendly (Djankov et al., 2007, pp. 308). From this perspective, the laws are not applied in the same direction.

Given that a reorganization procedure is in the benefit of the debt holder, an insolvency regime more protective with creditors should be characterized by rules with higher thresholds in number and/or in value. More severe rules will protect their interests by requesting a better quality of the restructuration plan and more valid information about the financial situation of the firm. These can improve the creditors' coordination and convince them that the plan is feasible. In this sense, a pro-creditor regime may adjust the severity of the rule so that the debtor does not obtain so easily the plan's approval without providing appropriate incentives to creditors. This idea argues that an insolvency system can be classified as creditor/debtor friendly by assessing the voting rule or at least by including its hardness in the mechanism of classification.

The differentiation of creditors in different classes or groups is invoked not only by the liquidation procedure as a measure of the absolute priority principle. The laws of corporate reorganization also admit such classifications which are preserved when the voting takes place. This allows classify the voting rules in one-class and in multiple classes rules. We entitled *Voting in Classes* a dummy variable that captures such distinction. In our database, we registered 30 countries whose bankruptcy codes offer the possibility to use multiple classes rules. Among these, 26 laws imposes the acceptance of the plan by every class of creditors and only 4 laws that require a certain majority of classes when claimants vote in classes *i.e.* Colombia, Italy, Moldova and Romania.[11]

Nonetheless, the voting result is not always decisive in establishing the firm future through legal means. The judge or the legal representative of the Court is empowered with different rights that can overcome a negative outcome of the voting process *e.g.* the cram-down decision or the force to modify certain aspects of the plan or the proposal in accordance

[11]The voting in multiple classes usually depends on the firm situation. Some of these bankruptcy legislations enforce a one-class voting when there is no need to group the claimants like in the case of Italy. However, we treated the voting rule as a multiple classes rule whenever the law provided the possibility to vote in classes.

with the best interest of creditors. This power is encountered in 22 countries of our database and is included in the *Court Power* variable.

The interference of secured claimants in the voting of unsecured creditors arises when they obtain the voting right. The secured claimants can often vote as unsecured creditors whenever the law provides them the right to vote in respect of the part which is not covered by the collateral (*Secured Partial*) and/or if they accept to surrender their security (*Secured Status*). This interference appears in 42 countries of our database proving that the secured creditors' recovery is not always limited to the collateral value at the moment of debtor's default. Table 1 presents the variables that will be employed in the analysis of the voting thresholds of the unsecured creditors.

Table 1 **Definition of Variables**

Variable	Definition
Voting Threshold Number (VTN)	The minimum percentage of the voting right holders required for the acceptance of the reorganization plan or the amicable settlement by creditors or by the class of creditors when the voting process groups the creditors in classes. This threshold is included in the voting rule of the bankruptcy law or act. Range from 0 to 1.
Voting Threshold Value (VTV)	The minimum percentage of the total debt that the claimants must hold so that the reorganization plan or the proposal is accepted by creditors or by the class of creditors when the rule or the plan imposes the voting in classes. This threshold coexists with *VTN*. Range from 0 to 1.
Voting Threshold Index (VTI)	The sum between the Voting Threshold Number and the Voting Threshold Value. Range from 0 to 2.
Voting in Classes	Dummy variable equals to 1 when the voting rule is a multiple class rule. A multiple class rule implies that a plan is accepted by the creditors if every class of creditors or a majority of classes voted in favor of the plan.
Court Power	Dummy equals to 1 when the Court or the Judge has the power to overcome the voting refusal of creditors by using the legal means provided by the insolvency regime.

Secured Partial	Dummy variable that takes into account the secured creditors' right to vote on their unsecured part of their debt whenever their collateral is insufficient to cover the total value of their claim.
Secured Status	Dummy variable equals to 1 if the bankruptcy law provide the right to secured creditors to vote as unsecured if they accept to lose their preferential status.
Legal Origin	Dummy variables that identifies four main origins of the bankruptcy act or law of each country *e.g.* English, French, German and Nordic. Sources: Djankov and al. (2008) and Wood (2007).
GNP per capita	Logarithm of the gross national product per capita 2008 (Atlas Method). Source: The World Bank's Open Data.
GINI	Gini coefficient of 2008. The most recent value was introduced for countries with no 2008 available data. Source: The World Bank's Open Data.
LEGAL RIGHTS INDEX	Index ranges from 0 to 10. A higher score imply that the collateral and the bankruptcy laws facilitate more easily the lending. Source: The World Bank, *Doing Business 2008*.
Recovery Rate	Ratio between the amount actually paid to the creditors by the firm and the value of the total debt. The depreciation of the furniture and the deduction of the insolvency costs are included. It considers the present value of the debt recovered. Source: The World Bank, *Doing Business Project 2012*.
Duration	The period of time measured in years starting from the firm's default until the payment of some or all of the money owed to the bank. The appeals and the extensions of the procedure are taken into account. Source: The World Bank, *Doing Business Project 2012*.

2.2 Summary Statistics

Table 2 provides a full description of our sample. The values of the variables that characterize the voting conditions of the unsecured creditors are grouped by the legal origin of the country bankruptcy code. According to our data, 32% of the insolvency systems have the common law origin while the French origin is encountered in 42% of the countries. The German bankruptcy law countries make up 21% of the sample. The use of the legal origins allows making some statements on the preference of the voting rule type. However, other important observations can be deducted from this tables that relates to the secured creditors' interference.

The first three columns list the values of the voting thresholds for the unsecured claimants. We can notice that the numerosity requirement is more often present in countries with British and Nordic legal origin. This observation is argued by the average values of their *VTN*. Moreover, the French origin group has the lowest average followed closely by the German origin group. In the same terms, the averages of the *VTV* emphasize the difference between the common bankruptcy law group and the rest of the sample. The British origin countries have on average the most severe majority qualification constraint with a *VTV* average of 0.70. The lower bound is held by the German origin group which presents an average threshold equals to 0.49. In an aggregate perspective, the English group has on average more severe voting rules than any other group.

The *VTI* achieves a maximum value of 1.5 in the case of Botswana, Ireland, Namibia and South Africa. 60 bankruptcy laws have a *VTI* superior to 1 while the minimum value of 0.5 concerns 21 countries of our sample. As shown in column 3 of Table 2, the French and the German groups are characterized by lower voting indexes. The Nordic group is located in the middle. These results have basically the same direction as the creditors' protection level mentioned in La Porta et al. (1998). The only difference is given by the German legal origin group. This could be explained by the fact that our sample is bigger and the legal origin is associated to the bankruptcy code.

Table 2 **Voting conditions of unsecured creditors**

Country	**VTN**	**VTV**	**VTI**	**Voting In Classes**	**Court Power**	**Secured Partial**	**Secured Status**
English origin average	**0.47**	**0.70**	**1.16**	**0.31**	**0.14**	**0.48**	**0.17**
French origin average	**0.28**	**0.59**	**0.88**	**0.23**	**0.28**	**0.23**	**0.28**
German origin average	**0.32**	**0.49**	**0.81**	**0.58**	**0.32**	**0.21**	**0.05**
Nordic origin average	**0.46**	**0.56**	**1.02**	**0.20**	**0.20**	**0.80**	**0.00**
Total average	**0.36**	**0.60**	**0.96**	**0.33**	**0.24**	**0.34**	**0.18**
			Tests of means by legal origin				
English vs. French origin	3.00***	4.92***	4.03***	0.72	–1.41	2.21**	–1.04
English vs. German origin	2.16**	5.20***	4.44***	–1.87*	–1.48	1.93*	1.22
English vs. Nordic origin	0.05	3.73***	1.10	0.48	–0.35	–1.30	0.99
French vs. German origin	–0.56	2.70***	0.80	–2.73***	–0.26	0.170	2.06**
French vs. Nordic	–1.37	0.79	–0.97	0.15	0.37	–2.79***	1.36
German vs. Nordic	–1.09	–0.75	–1.47	1.51	0.48	–2.76***	0.50

Note: The sample gathers data from 92 countries. *VTN* represents the voting threshold number while *VTV* is the voting threshold value. The voting threshold index is the sum between *VTN* and *VTV*. *Voting in Classes* is a dummy equals to 1 when claimants can vote in different classes of creditors according to the national bankruptcy law. *Court Power* is a dummy variable equals to 1 when the judge has the power to overcome the voting results. *Secured partial* equals 1 if the secured creditors can vote as unsecured creditors in respect to the part of their debt not covered by the collateral. *Secured status* is 1 whenever secured claimants can vote as unsecured creditors if they accept to lose the preferential status of their debt. The values of the tests of means are the *t*-Statistics. *** imply the significance at 1% level; ** at 5% level and * at 10% level.

According to the column 4, the voting in classes of creditors is more frequent in countries that have bankruptcy codes of German influence which represent the same group that records the most lenient rules. Furthermore, the Court power to impose a reorganization plan or a proposal is granted more often by the insolvency regimes of French and German origin. The justification of this power relies on the assumption that sometimes continuing the business activity is a more rational decision for the general social welfare, but also for the creditors when the liquidation value of the firm is lower. According to Mooradian (1994), the conflicts between certain creditors can prevent the save of a distressed firm which is economically efficient. This situation could be avoided if the Court could overcome the creditors' voting decision. Nevertheless, the English bankruptcy acts usually deprived the Court of such power giving more importance to the voting process. This is in line with the creditor friendliness of the common law.

A different form of creditors' protection is to give the voting right to the secured creditors in respect to the balance of their claim which is not covered by the collateral. It protects to a certain extent the secured creditors from risky events or from the moral hazard produced by the debtor's behavior. Such a protective measure can be useful if there is a possibility to obtain or to increase the recovery of their unsecured part of their debt through the reorganization procedure. This right prevails in the English and the Nordic bankruptcy acts. However, the secured creditors can also vote in the unsecured class if they accept to lose the preferential right of their secured claim (*Secured Status*). In our sample, we noticed that the French insolvency laws prefer more this legal approach of interference than the first one.

Table 2 also presents the differences in means of the variables according to the legal origin. The differences between the legal groups are more significant in what concerns the voting threshold value (*VTV*). The bankruptcy acts of English influence have statistically distinctive voting thresholds. Thus, the legal origin can be a source of explaining the hardness of the rules. Furthermore, the voting conditions of the unsecured creditors are almost identical across the groups in terms of the possibility to vote in classes, the court power and the secured creditors' right to vote by losing their security.

Table 3 **Variables Correlation**

	VTN	VTV	VTI	Voting In Classes	Court Power	Secured Partial	Secured Status	English Origin	French origin	German origin	Nordic Origin
Voting in Classes	–0.156 (0.138)	–0.165 (0.117)	–0.196* (0.062)								
Court Power	–0.136 (0.198)	–0.238** (0.022)	–0.210** (0.044)	0.371*** (0.000)							
Secured Partial	0.088 (0.406)	–0.013 (0.899)	0.065 (0.538)	–0.202* (0.054)	–0.076 (0.471)						
Secured Status	0.191* (0.068)	0.227** (0.029)	0.251** (0.016)	–0.212** (0.043)	–0.201* (0.054)	0.016 (0.879)					
English Origin	0.287*** (0.006)	0.478*** (0.000)	0.434*** (0.000)	–0.023 (0.829)	–0.161 (0.125)	0.209** (0.045)	–0.022 (0.838)				
French Origin	–0.246** (0.018)	–0.070 (0.508)	–0.229** (0.029)	–0.174* (0.096)	0.086 (0.413)	–0.193* (0.066)	0.215** (0.040)	–0.582*** (0.000)			
German Origin	–0.083 (0.433)	–0.418*** (0.000)	–0.244** (0.019)	0.275*** (0.008)	0.092 (0.385)	–0.136 (0.195)	–0.174* (0.098)	–0.346*** (0.000)	–0.438*** (0.000)		
Nordic Origin	0.096 (0.361)	–0.080 (0.449)	0.044 (0.678)	–0.065 (0.541)	–0.022 (0.835)	0.235** (0.024)	–0.114 (0.279)	–0.163 (0.121)	–0.206** (0.049)	–0.122 (0.246)	
GNP per capita	0.005 (0.964)	–0.106 (0.316)	–0.041 (0.698)	0.061 (0.565)	0.140 (0.182)	0.003 (0.977)	–0.181* (0.084)	–0.125 (0.236)	–0.071 (0.504)	0.071 (0.500)	0.282*** (0.006)

Note: The numbers in parentheses are the *p*-values. *** represents the significance at 1% level, ** at 5% level and * at 10% level.

The correlation coefficients between the variables are presented in Table 3. We can observe a negative and significant correlation between the threshold index and the bankruptcy laws of French and German origin. However, the English legal origin has the most significant correlation with all of the voting thresholds. Its negative correlation confirms again the idea that the voting rules of English origin are more severe. The *Voting in Classes* proves to have a weak significance but negative correlation with the *VTI* while the national income per capita seems not to affect the rules. Among the interference variables, only the mechanism of the *Secured status* has a positive impact on the severity.

3 Secured Creditors and the Voting Index

Treating the voting conditions of secured creditors separately is imposed by the insolvency legislation. If the unsecured claimants have usually full voting rights, the bankruptcy laws often limit the voting of the secured creditors. In our database, there are 47 countries in which the secured debt holders can vote in respect with the full amount of their recognized claim without losing their security. Amongst these countries, 14 have bankruptcy codes of English origin, 18 of French origin while the German legal group counts 14 countries. However, the possibility to vote in classes is encountered in almost half of the countries that grant full voting right to secured creditors. In Slovakia and Russia, the acceptance of the reorganization plan requires the full consent of the secured claimants making the *VTI* to be equal to 2. [12] In the unsecured creditors' sample, the voting index did not reach the maximum value.

Table 3 presents the average values by legal origin group. As in the case of the unsecured creditors, the common law group has on average more stringent numerical and qualification conditions than the French and the German group. Furthermore, the average values of the *VTV* have slightly increased in the case of the English and the German group. These differences may suggest that voting as a secured creditor is not the same as voting as an unsecured one. Thus, we conduct some test of means by creditors' type in the legal origin group. The differences between the two voting positions are statistically significant in relation to the voting threshold value. This result holds for each group of countries.

[12]These measures are in accordance with the 2006 Act on Bankruptcy and Restructuring of Slovakia and the Federal Law of the Russian Federation number 127 of 2002.

Table 3 **Voting Conditions of the secured creditors**

	VTN	VTV	VTI	Voting in Classes	Court Power
English origin Average	0.44	0.72	1.16	0.53	0.15
French origin Average	0.24	0.59	0.82	0.32	0.37
German origin Average	0.36	0.57	0.93	0.64	0.42
Total Average	0.33	0.62	0.95	0.48	0.32
	Tests of means by legal origin				
English vs. French origin	2.26***	3.83***	3.10***	1.23	–1.39
English vs. German origin	0.85	2.64***	1.93**	–0.53	–1.59
French vs. German origin	–1.17	0.26	–0.73	–1.90***	–0.34
	Tests of means by creditors' type				
English (Unsecured) vs. English (Secured)	–0.33	5.51***	0.03	1.35	0.12
French (Unsecured) vs. French (Secured)	0.57	6.34***	–0.53	0.66	0.64
German (Unsecured) vs. German (Secured)	–0.32	3.14***	0.92	0.36	0.64

Note: The sample gathers data from 47 countries. *VTN* represents the voting threshold number while *VTV* is the voting threshold value. The voting threshold index is the sum between *VTN* and *VTV*. *Voting in Classes* is a dummy equals to 1 when claimants can vote in different classes of creditors according to the national bankruptcy law. *Court Power* is a dummy variable equals to 1 when the judge has the power to overcome the voting results. The values of the tests of means are the *t*-Statistics. *** imply the significance at 1% level; ** at 5% level and * at 10% level.

4 Importance of the Voting Rule

A modification of the voting rule can contribute to the saving of an efficient firm *i.e* firms whose total asset value is higher under a reorganization procedure than the liquidation value. However, the way in which the rule is designed may influence the outcome of the voting process and thus the recovery of the creditors' debt. This aspect is important especially when it comes to efficient firms. Furthermore, we will consider the standard case of a limited liability business which is in financial distress. The approach was developed by Djankov et al. (2008).

In order to make the data comparable across different countries, the standard case implies certain assumptions. They are included in the *Doing Business Project 2012* of the World Bank. First, the business has one secured creditor which is a domestic bank that holds 74% of the total debt. The other part of the debt is detained by the unsecured claimants *i.e.* 201 are employees, 50 suppliers and the tax authorities. Given that the firm defaulted on its loan, the bank prefers to recover its debt as quickly as possible. In an opposite direction, the unsecured creditors want to avoid a piecemeal sale of the assets. Second, the bank can recover fully its debt if the firm continues its activity. If the bank's collateral is sold, the recovery rate cannot exceed 70% of its debt. The creditors can recover more if the business assets are kept intact. A reorganization procedure would be the best outcome for them. Third, the firm cannot continue its activity under the liquidation procedure and the debt enforcement or foreclosure procedure. The legal reorganization is the only option that permits the firm survival.

If the outcome of the firm is decided through voting, we can observe that rules that focus more on the numerosity requirement will generate the efficient outcome and thus a higher degree of recovery. We will test this hypothesis using the data from the *Doing Business Project 2012*. Given the methodology of the voting index, we included only the countries in which the business was either liquidated or reorganized. The sample covers 79 countries. The information about the creditors' recovery rate and the length of the legal procedure was provided by local insolvency practitioners. In addition to the indicators of severity, we also add other variables that describe and determine the voting result.

One main characteristic of the voting rules associated to bankruptcy is that the debt holders can be grouped in classes and subclasses. Hence, the rule may impose that a reorganization plan should be accepted when each class of creditors or a certain number of them voted for the plan. According to Maug and Yilmaz (2002), a simple one-class voting presents a lack of efficiency when it comes to aggregate the dispersed information because some participants will refuse to disclose their own information during the voting process. In this matter, a two-class voting approach is more efficient especially when voters of similar size have strong conflict. Such information could be useful in assessing the real potential of saving the firm through reorganization. Not revealing such information to the other claimants may lead to the liquidation of solvent firms or conversely to the reorganization of firms that should be otherwise liquidated. However, the information aggregation aspect can also justify the separation of claimants into groups if we take the point of view provided by the social theory choice. Thus, we could perceive the classes as multiple groups with different identities among which some are in minority and others are not. The bigger classes would benefit from the minority groups participation in the voting if it could bring more valuable information for them which could be used to increase the general welfare (Suk-Young Chwe, 1999). These references support the inclusion of the *Voting in Classes*.

In the voting process of the unsecured claimants, there are two actors that can intervene. The first one is the judge that can sometimes overcome the voting result if the law grants him with such power. The second one concerns the secured creditors. If they could obtain the voting right as unsecured, their participation could increase the numbers of voters having thus the possibility to affect the voting outcome. In our regressions, we control for the judge power (*Court Power*) and the potential interference of the secured creditor (*Secured Partial* and *Secured Status*).

The general regression is the following:

$$Recovery\ Rate_i = \alpha + \beta_1 y_i + \beta_2(Voting\ in\ Classes)_i + \beta_3(Court\ Power)_i + \beta_4(Secured\ Partial)_i + \beta_5(Secured\ Status)_i + \beta_6(GNP\ per\ capita)_i + \beta_7(GINI)_i + \beta_8(LEGAL\ RIGHTS\ INDEX)_i + \beta_9(DURATION)_i + \varepsilon_i,$$

where i = 1..79 refers to the country, α is the constant and ε_i represents the error term. The dependent variable is the *Recovery Rate* of the creditors' debts which represent the ratio between the amount actually paid to the creditors by the firm and the value of the total debt. The unsecured creditors' voting threshold is represented by $y_i \in \{VTN, VTV, VTI\}$. We control for the country development (*GNP per capita*), social inequalities (*GINI*) and legal rights of borrowers and lenders (*LEGAL RIGHTS INDEX*). The length of time during which the creditors recover their debt is measured by *DURATION*. The results are reported in Table 4.

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Table 4 **Recovery Rate and the Voting Conditions**

Independent Variables	**(1)**	**(2)**	**(3)**
VTN	0.143**		
	(0.021)		
VTV		0.037	
		(0.167)	
VTI			0.132**
			(0.015)
Voting in classes	0.007	0.009	0.010
	(0.837)	(0.801)	(0.771)
Court Power	0.011	0.029	0.021
	(0.762)	(0.716)	(0.569)
Secured Partial	0.028	0.035	0.028
	(0.403)	(0.303)	(0.569)
Secured Status	–0.070	–0.064	–0.075*
	(0.110)	(0.155)	(0.090)
GNP per capita	0.087***	0.090***	0.088***
	(0.000)	(0.000)	(0.000)
GINI	–0.113	–0.146	–0.139
	(0.421)	(0.327)	(0.325)
LEGAL RIGHT INDEX	0.004	0.007	0.004
	(0.492)	(0.332)	(0.556)
DURATION	–0.113***	–0.117***	–0.115***
	(0.000)	(0.000)	(0.000)
Constant	–0.107	–0.253	–0.175
	(0.631)	(0.312)	(0.432)
Number of observations	79	79	79
Adjusted R^2	0.734	0.721	0.736

Note: The coefficients of the three regressions are estimated with the OLS method. The dependent variable measures the recovery rate of the business. The other variables are described in Table 1. The numbers in parentheses are the *p*-values. *** imply that the coefficient is significant at 1% level, ** at 5% level and * at 10% level.

We can notice that the coefficient of *VTN* is positive and significant confirming our idea that the design of the voting rule can affect the creditors' recovery. In this case, an increase of 18,75 %[13] of the *VTN* determinates an increased recovery rate by 14%. The business can produce higher recovery in countries that focus more on the numerical constraint of voting. In such countries, the unsecured creditors will have more power decision. Thus, the voting rules are not only important for the decision process, but also for the achievement of the *ex post* efficiency. According to Blazy et al. (2008), a legal system is *ex post* efficient when it saves only the financial distressed firms which are economically efficient. In column 3 of Table 4, the coefficient of the *VTI* is also positive and significant. However, the modification of the severity must be undertaken at the level of the numerical constraint.

5 Conclusions

The voting rules in bankruptcy differ across countries. These differences are well defined by the legal origin of the bankruptcy law. In general, the common law countries have the most severe voting rules. The laws of German and French legal origin are based on lower voting thresholds. The Nordic group of country is located in the middle. However, the result holds even in the case of secured creditors' rule. In addition, there is a significant difference between voting as an unsecured creditor and as a secured one within the same family of law. It is explained by the qualification constraint.

The way in which the voting rules are designed may influence the efficient allocation of the firm resources. Using the standard case of an efficient firm, we demonstrated that the recovery rate of the creditors depends on the severity of the rules. A modification of the rules can be a mechanism to avoid the errors of type II that appears when an efficient firm that should be reorganized is liquidated. Nevertheless, some distressed firms which are not efficient may be treated as efficient making the reorganization feasible (Type I error). The interaction between the voting conditions and the errors may represent the subject of further research.

[13]This value represents the average gap between the values of the *VTN*.

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Data Appendix

Country	Additional Sources	Name of the law
Albania	Boga & Associates (Tirana, Albania)	Albanian Bankruptcy Law No. 8901 of 23 May 2002
Algeria		Commerce Code of Algeria
Angola	Henrique Doroteia – Lawyers (Lisbon, Portugal)	Insolvência e Recuperação de Empresas – Decreto-Lei No. 77
Argentina		Ley de Concursos y quiebras No. 24522 of July 20 1995
Armenia	Mr. Armen Melkumyan, CEO/Partner of “Prudence” CJSC	Law on Bankruptcy of February 10 2007
Australia		Corporation Act of 2001
Austria	Federal Ministry of Justice (Austria)	Insolvenzordnung of 2010
Azerbaijan	LexInfoSys (University of Bremen, Germany)	Law No. 604 of the Azerbaijan Republic of 23.06.1997
Bahrain		Bankruptcy and the Composition Law of 23.05.1987
Bangladesh		Bankruptcy Act No. 10 of 1997
Barbados		Bankruptcy and Insolvency Chapter 303 of 2002
Belarus	Cerha Hempel Spiegelfeld Hlawati FLLC (Minsk, Belarus)	Law of the Republic of Belarus on Economic Insolvency No. 423-Z dated 18 July 2000
Belgium		Loi relative à la continuité des entreprises of 31.01.2009
Bolivia		Ley de Reestructuracion Voluntaria de Empresas of 4.08.2003

Bosnia and Herzegovina		Law on Bankruptcy Proceedings of 2007
Botswana	Restructuring and Insolvency 2009 published by Law Business Research Ltd 87 Lancaster Road London, W11 1QQ, UK	Insolvency Act Chapter 42:02
Brazil	*Restructuring and Insolvency multi-jurisdictional guide* of the Practical Law Company	Law No 11.101 of 9.02.2005
Bulgaria	Bulgaria Economic Forum	Commerce Law of 1991
Cameroon		OHADA No. 7 of 1 Jully 1998
Canada	Restructuring and Insolvency 2010 published by Law Business Research Ltd 87 Lancaster Road London, W11 1QQ, UK	Bankruptcy and Insolvency Act 1985
Chile	The Americas Restructuring and Insolvency Guide 2008/2009, Globe Business Publishing	Law No. 18175 of 28.10.1982 amended by the Law No. 20080 of 24.11.2005
China	*Restructuring and Insolvency multi-jurisdictional guide* of the Practical Law Company	The Entreprise Bankruptcy Law of 1 June 2007
Colombia		Law No. 1116 of 27.12.2006
Costa Rica		Commercial Code of Costa Rica
Croatia		Bankruptcy Law of 2006
Cyprus		Company Law Chapter 113
Czech Republic	PETERKA & PARTNERS v.o.s. advokatni kancelar, Na Prikope 15, 110 00 Prague 1, Czech Republic	Act No. 182/2006 on Insolvency and Methods of its Resolution
Denmark	- Thomas Dahl Pedersen, Assistan Attorney, Copenhagn, Denmark - Sj Law, Gammel Strand 34, 1202, Copenhagn, Denmark	Konkursloven of 1977
Dominican	Restructuring and Insolvency 2012 published by Law Business Research Ltd	Law No. 4582 of 1956

Republic	87 Lancaster Road London, W11 1QQ, UK	
Ecuador		Ley de Concurso Preventivo of 22.04.1997
Estonia	Ministry of Justice of Estonia	Reorganisation Act of 2004
Finland	Restructuring and Insolvency 2009 published by Law Business Research Ltd 87 Lancaster Road London, W11 1QQ, UK	Restructuring of Entreprises Act of 1993 updated up to 2007
France		Commercial Code, Chapter 6, The *Sauvegarde* Procedure.
Georgia		The Law of Georgia on Insolvency Proceedings of 15.08.2007
Germany	Ministry of Justice of Germany	Insolvency Statute of 5 October 1994
Greece	- Mr. Manolis Fellios, 10th N.Vamva Str, Athens, PC: 10674, Greece - Restructuring and Insolvency 2011 published by Law Business Research Ltd 87 Lancaster Road London, W11 1QQ, UK	Bankruptcy Code of 2007
Hungary	Mazars – Audit (Budapest, Hungary)	Act XLIX of 1991 on Bankruptcy Proceedings and Liquidation Proceedings
Iceland	Restructuring and Insolvency 2009 published by Law Business Research Ltd 87 Lancaster Road London, W11 1QQ, UK	Bankruptcy Act of 1991
India	Restructuring and Insolvency 2012 published by Law Business Research Ltd 87 Lancaster Road London, W11 1QQ, UK	Bankruptcy Act of India
Indonesia		Indonesia's Bankruptcy law, Law 37 of 2004
Ireland		Bankruptcy Act of 1988
Israel	Restructuring and Insolvency 2011 published by Law Business Research Ltd	Companies Law No. 5759 of

	87 Lancaster Road London, W11 1QQ, UK	1999
Italy	*Restructuring and Insolvency multi-jurisdictional guide* of the Practical Law Company	Bankruptcy Law No. 267
Jamaica		The Companies Act of 2004
Japan	Masashi Takahashi, Kojima Law Offices (Tokyo, Japan)	Minjisaiseihou of December 22, 1999
Kazakhstan		Law of Bankruptcy of 21.01.1997
Kenya		The Bankruptcy Act, Chapter 53
Korea		Rehabilitationand Bankruptcy Act of 2006
Latvia	Ministry of Justice of the Republic of Latvia	Insolvency Law of 2010
Lithuania		Law on Restructuring of Enterprisesof 20.03. 2001
Luxembourg	Restructuring and Insolvency 2010 published by Law Business Research Ltd 87 Lancaster Road London, W11 1QQ, UK	Bankruptcy Law
Macedonia		Bankruptcy Law of 14.03. 2006
Madagascar		Commercial Code
Malaysia		Bankruptcy Act
Mexic	Restructuring and Insolvency 2011 published by Law Business Research Ltd 87 Lancaster Road London, W11 1QQ, UK	Commercial Insolvency Law of 12.05.2000
Moldova		Insolvency Law No. 632 of 2001
Namibia		Insolvency Act
Netherlands		Dutch Bankruptcy Act

New Zealand	Restructuring and Insolvency 2009 published by Law Business Research Ltd 87 Lancaster Road London, W11 1QQ, UK	Insolvency Act of 2006
Nigeria	Restructuring and Insolvency 2012 published by Law Business Research Ltd 87 Lancaster Road London, W11 1QQ, UK	Bankruptcy Act of 2004
Norway	The Ministry of Justice and Public Security of Norway	Konkursloven of 1984
Pakistan		Companies Ordinance of 1984
Panama	The Americas Restructuring and Insolvency Guide 2008/2009, Globe Business Publishing	Commercial Code
Paraguay		Bankruptcy Law No. 154
Peru		Law No. 27809 of 8.08.2002
Philippines		Financial Rehabilitation and Insolvency Act of 2010
Poland	Juriscope	Law on Bankruptcy and Reorganisation of 28.02.2003
Portugal	Ministry of Justice of Portugal	Law No. 53 of 18.03.2004
Romania		Insolvency Law No.85 of 2006
Russia		Federal Law No. 127-FZ of 26.10.2002
Serbia		Law on Bankruptcy Proceedings of 23.06.2003
Singapore		Bankruptcy Act, CHAPTER 20
Slovakia	*Restructuring and Insolvency multi-jurisdictional guide* of the Practical Law Company	The Act on Bankruptcy and Restructuring of 01.01.2006
Slovenia	Ministry of Justice and Public Administration of Slovenia	Financial Operations, Insolvency Proceedings and Compulsory Dissolution Act

		of 2007
South Africa	Restructuring and Insolvency 2009 published by Law Business Research Ltd 87 Lancaster Road London, W11 1QQ, UK	Companies Act No. 61
Spain		Law No. 22 of 2003
Sri Lanka		Companies Act No. 17
Sweden	Restructuring and Insolvency 2010 published by Law Business Research Ltd 87 Lancaster Road London, W11 1QQ, UK	
Switzerland	Ministry of Justice of Switzerland	Bundesgesetz über Schuldbetreibung und Konkurs
Thailand		Bankruptcy Act No. 4 of 1998
Trinidad and Tobago	The Americas Restructuring and Insolvency Guide 2008/2009, Globe Business Publishing	Bankruptcy and Insolvency Act of 2007
Tunisia		Commercial Code
Turkey		Execution and Bankruptcy Law
Uganda		Bankruptcy Act
Ukraine	Bertrand Barrier, Gide Loyrette Nouel Kyiv office of G.L.N. Europe SARL 4, Volodymyrska street 01001 Kyiv - Ukraine	Law on Renewal of the Debtor's Solvency or Declaring Its Bankruptcy of 1992
United Arab Emirates		Federal Law No. 18 of 1993
United Kingdom		The Entreprise Act of 2002, The Administration Procedure.
United States		Chapter 11 of the U.S. Federal Reform Bankruptcy Act of 1978

Uruguay	The Americas Restructuring and Insolvency Guide 2008/2009, Globe Business Publishing	Law No. 18387 of 2008
Venezuela		Commercial Code
Vietnam	Restructuring Across Borders – Socialist Republic of Vietnam: corporate restructuring and insolvency procedures by Vicki Liu and Richard Woodworth (2012)	Law on Bankruptcy No. 21 of 2004
Zambia		Bankruptcy Act No. 27, Chapter 82

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