Employment Policy and Bankruptcy Law - Does Legal Tradition Matter? *

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This version: Feb 2006

Abstract

In this paper we analyze the relationship between strictness of employment protection and efficiency of bankruptcy law. We argue that country's legal tradition provides the appropriate institutional proxy to explain the nature of such relationship. We find that for civil law countries where bankruptcy procedures are more inefficient a stricter employment protection policy is enforced. For common law countries no relationship between employment protection and bankruptcy law is obtained. These results support the thesis that inefficiencies in bankruptcy law help employment protection policies for interventionist governments. They are also consistent with normative theories of bankruptcy for common law countries.

JEL Classification: K0.

Keywords: bankruptcy law, employment protection, legal origin.

*We are grateful to Frank Stephen, Benito Arruñada, and seminar participants at the UPF 6th Workshop on Institutional Analysis for helpful suggestions. Garoupa acknowledges financial support by FCT, POCTI/ECO/44146/2002, Portugal. The usual disclaimers apply.

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1 Introduction

There is a vast literature on the efficiency of bankruptcy law[1], and on the regulation of labor and employment protection[2], but not much has been written about both.[3] In fact, bankruptcy law aims at solving financial distress whereas employment law aims at regulating the labor market, hence no obvious relationship between both exists. The interests of workers in bankruptcy law are considered inasmuch as they are creditors, but not the consequences in terms of employment. However, in some countries, there is a feeling that bankruptcy law is used as an inefficient mechanism to protect jobs: bankrupt firms linger on for years, failing or delaying payments under governments' protection, to avoid job losses. Therefore, the inefficiency of bankruptcy procedures can be analyzed as a strategic intervention to facilitate employment protection by increasing exit costs for firms.[4] Testing whether there is a meaningful relationship between employment protection and inefficiency of bankruptcy procedures is the purpose of this paper.

If we take the perspective that bankruptcy law is about the capital market and employment protection is about the labor market, no meaningful relationship should be expected to be observed.[5] If both bankruptcy and employment laws are inefficient, it does not follow that the more inefficient one is, the more inefficient the other should be, since the underlying reasons for inefficiency are not obviously connected. However, once governments use bankruptcy procedure as a strategic device to protect jobs, we can claim that the more inefficient is bankruptcy law, the higher employment protection we expect to observe. By increasing exit costs to firms, the costs for the government from implementing employment protection policies are reduced.

In this paper, we investigate if sclerotic labor markets[6] go side by side with inefficient bankruptcy policies. In this analysis we consider an inefficient bankruptcy policy (either liquidation or reorganization procedures[7]) as one taking a long time to conclude the procedure. This eventually allows economically unviable firms, which inevitably become financially distressed, to remain opened for a long time before at last closing. This can directly be the effect of a bad design of bankruptcy laws, or its abusive usage, allowed by the overall legal and judicial environment. Those all sum up to the fact that the visible face of an inefficient bankruptcy policy is a high cost of firm closure.[8]

We conduct the analysis testing the hypothesis that (i) countries with more protected labor markets are the

[1] See the book edited by Bhandari and Weiss (1996) and references therein.

[2] See Botero et. al. (2004) and references therein.

[3] An exception is Armour and Deakin (2002).

[4] See Morgado (2005) for a theoretical exposition of this idea.

[5] A conclusion supported by the normative theory developed by Schwartz (2005).

[6] As measured by a stricter employment protection legislation: we apply the result by Blanchard and Portugal (2001) that higher degrees of employment protection are associated with more rigid labor markets. Therefore we measure such rigidity indirectly using the Employment Protection Index from OECD Employment Outlook.

[7] We follow Armour (2001) and we use the terms "liquidation" and "reorganization" meaning the possible outcomes of (corporate) insolvency procedures (known as "bankruptcy" in the US). We take "insolvency" to mean "financial distress", i.e., the firm cannot pay its debts as they fall due. Therefore, the terms "liquidation" and "reorganization" refer to the outcomes of "financial distress", taking "liquidation" to mean conversion of a firm's assets into cash, through sale and "reorganization" meaning financial restructuring of a financially distressed firm, where claimants exchange their old claims for new ones, which will necessarily be less than the face value of their old claims, because the firm has been unable to pay its debts.

[8] We measure this cost using data available from the World Bank Doing Business Database; see http://rru.worldbank.org/DoingBusiness/ExploreTopics/ClosingBusiness/ the World Bank Doing Business Database (2004).

ones evidencing a less efficient bankruptcy procedure vs. (ii) inexistence of evidence of such a statement in any of the countries. We conclude, however, that neither of the hypotheses are sustained by empirical evidence. This leads us to conclude, that whilst hypothesis (i) is valid for a group of OECD countries, hypothesis (ii) is the one sustained by another group.

The claim of the paper is not, therefore, that more efficient bankruptcy procedures go side by side with less employment protection always. In itself, that would be a simple observation given the nature of inefficient law. In fact, we argue that countries with more employment protection have inefficient bankruptcy laws because of the interventionist nature of the government on the labor market. Inefficient bankruptcy laws are part of a given political strategy. However, for countries with a less interventionist nature, no relationship can be established with respect to bankruptcy law since whatever the nature of inefficiencies is, they are not related. Efficient bankruptcy procedure aims at solving financial distress, and no inference can be made with respect to employment.

We use the legal family as a proxy for the institutional arrangement that fosters bankruptcy procedures that are used as strategic devices to intervene in the labor market. Contrary to narrow interpretations of the recent literature in Law and Finance, we do not claim that legal families determine the existing relationship, but they can be used as a good proxy for the interventionist nature of the government.[9]

We use a sample of twenty three developed countries to make sure that the distinction between common law and civil law countries is driven not by developing economies with obvious problems concerning legal enforcement.[10] They are classified into common law or civil law countries according to La Porta et. al. (1998).

For civil law countries, we find that countries evidencing higher degrees of employment protection are usually the countries where it is more difficult and costly to close a firm. For common law countries, no evidence for such a relation between employment protection and efficiency of bankruptcy laws exists. Our reasoning for the results rests upon the observation that inefficient bankruptcy policies provide the adequate context for employment protection to be implemented, when regulation of markets is more common given the interventionist nature of governments, as certainly is the case in civil law countries.

The paper is organized as follows: in section 2, the data is described; in section 3 the theory underlying the empirically tests is described; the results are presented in section 4; in section 5, we test several alternative specifications for robustness which we report in detail in the appendix; and section 6 concludes the paper.

[9] See La Porta et. al. (1998) for the comparative work in Law and Finance, Botero et. al. (2004) for the relationship between legal origin and regulation of labor, Beck and Levine (2005) for a survey of the relevant literature, and Claessens and Klapper (2005) for the use of bankruptcy law around the world.

[10] See Stephen and Van Hemmen (2003) on this point.

Countries	legal family
Australia	English Common Law
Austria	German Civil Law
Belgium	French Civil Law
Canada	English Common Law
Denmark	Scandinavian Civil Law
Finland	Scandinavian Civil Law
France	French Civil Law
Germany	German Civil Law
Greece	French Civil Law
Ireland	English Common Law
Italy	French Civil Law
Japan	German Civil Law
Korea, Rep.	German Civil Law
Netherlands	French Civil Law
New Zealand	English Common Law
Norway	Scandinavian Civil Law
Portugal	French Civil Law
Spain	French Civil Law
Sweden	Scandinavian Civil Law
Switzerland	German Civil Law
Turkey	French Civil Law
United Kingdom	English Common Law
United States	English Common Law

Table 1: Legal Family

2 Data

2.1 A Country's Legal Family

Following La Porta et. al. (1998), we classify a country's legal family according to two great groups: Common Law, which is English in origin, and Civil Law, which derives from Roman Law. Within the Civil Law tradition, three major branches can be identified: French civil law, German civil law and Scandinavian civil law. The English common law and French and the German civil law have spread around the world through a combination of conquest, imperialism or more subtle imitation. The classification of the sample of countries we use according to this criteria is in table 1.[11]

2.2 Employment Protection Legislation

The OECD defines employment protection legislation (EPL) as referring both to regulations concerning hiring (e.g. rules favoring disadvantaged groups, conditions for using temporary or fixed-term contracts, training requirements) and firing (e.g. redundancy procedures, mandated prenotification periods and severance payments, special requirements for collective dismissals and short-time work schemes). EPL stands for employment protection regulation generally, but it refers to all types of measures, whether grounded primarily in legislation, court rulings, collectively bargained conditions of employment or customary practice. Therefore, and for the rest of the paper, EPL stands for employment protection in its wide sense, not only legislation itself, but its

[11] We are aware of the controversies surrounding such classification but have decided to use the now standard LLSV approach for consistency.

practice as well, constructing, therefore, a thorough perspective of the degree of employment protection in the selected OECD countries in 1999. The reason for this strategy is that some forms of regulations are likely to be adopted even in the absence of legislation, simply because both workers and employers take advantages from long-term employment relations and for the sake of stability of such a relationship. Therefore, EPL refers to regulations, besides explicit legislation, concerning either hiring and firing.

Employment protection has been in increasing demand from public, due to the heightened perception of job insecurity in many OECD countries and fear of job loss. The great objective of employment protection measures, either public through labor laws or private through contractual arrangements, are directed to enhance job security. However, those measures may be incompatible with labor market flexibility and an extensive line of research has erupted around this issue.[12]

In this paper we use two measures for a country's Employment Protection. [13] One is the EPL index calculated in the OECD Employment Outlook. It consists of a composite measure of indicators of the strictness of employment protection for regular as well as temporary employment. It is calculated from weighted averages of indicator variables from a group of select countries. As far as regular employment is concerned, these indicators refer to regular procedural inconveniences to dismiss an employee, notice and severance pay for no-fault individual dismissals, definition of unfair dismissal, trial period before eligibility arises, unfair dismissal compensation at 20 years of tenure and extent of reinstatement. As far as temporary work is concerned, selected indicators are the cases where fixed-term contract is permitted, the maximum number of successive fixed term contracts, maximum cumulated duration of fixed term contracts, types of work for which temporary work agencies (twa) employment is legal, restrictions on the number of renewals of twa contracts and the maximum cumulated duration of twa contracts. Some of these variables are qualitative in nature and the quantitative ones have differences in scale. Therefore, every individual indicator was converted into cardinal scores normalized to range from 0 to 6, with higher scoring representing stricter regulation. Since theoretical background on employment protection legislation emphasizes the similitude of EPL to a tax on the employer, stricter regulation can be interpreted as higher employer-borne cost of dismissing. Further details on the calculation of the EPL index can be found on Annex 2.B in OECD Employment Outlook. The values for the OECD EPL index used in this paper are benchmarked to late 1990's.

We also use one other measure for EPL, calculated separately and used for robustness check. It consists of a weighted average of variables from the World Bank Doing Business Database according to the Principal Components extraction technique. The variables used to construct this index are benchmarked to January 2004 and are (i) difficulty of hiring; (ii) rigidity of hours; (iii) difficulty of firing; (iv) firing costs. These variables are described in detail in the appendix.

[12] See Blanchard and Wolfers (2000), Lazear (1990), Nickell (1997), Nickell and Layard (1999), Nickell et. al. (2002).

[13] OECD Employment Outlook (1999), chapter 2, "Employment Protection and Labour Market Performance" and http://rru.worldbank.org/DoingBusiness/ExploreTopics/HiringFiringWorkers/ the World Bank Doing Business Database (2004)

The values for both the OECD EPL index and for the World Bank EPL index for the selected countries are in the appendix A.2.

2.3 Bankruptcy Law Efficiency

In this section we describe the method of calculation of a measure of a country's bankruptcy law efficiency. Here we take efficiency in a broad ex post sense, i.e., we analyze the outcomes of a bankruptcy procedure in terms of how much time it takes to close a business: the greater the speed, the greater the degree of efficiency. We also take into consideration the legal context of a country, since it conditions the way the law is applied: the same law design may have different effects according to the context where it is applied, e.g., slow courts will make the average time to close a business to be longer, *cæteris paribus*. Briefly, we actually take inefficiency of bankruptcy law to mean high (exogenous) exit costs and we use variables that influence such exit costs: slow judicial systems and messy bankruptcy procedures increase the exit costs. When firms face high exit costs they take longer to leave the market. Therefore "in countries where bankruptcy is inefficient, unviable businesses linger around for years, preventing assets and human capital from being allocated to more productive uses. Most often, the bottlenecks in bankruptcy are associated with the inefficient judicial process, and hence the unwillingness of banks and other lenders to push for a formal insolvency resolution."[14]

From the World Bank Doing Business Database we use the variables: (i) time necessary to close a business; (ii) cost of closing a business in terms of percentage of estate; (iii) percentage of recovered debt after closing the business. We also use data available from La Porta et. al. (1998) concerning the overall environment surrounding the closure of a business: (i) indicator of whether there is an automatic stay on assets in case of default; (ii) indicator of whether there are restrictions for going into reorganization; (iii) indicator of whether management does not stay in reorganization; (iv) index for the efficiency of the judicial system; (v) index for rule of law; (vi) index for the risk of contract repudiation. All variables and their sources are described in detail in appendix A.1..

It should be noted that an increase in the size of the variables indicate an increase in exit costs, except for the variable "percentage of recovered debt after closing the business", an increase of which indicates a more successful firm closure as far as creditors are concerned. We use Principal Component Analysis to reduce the number of variables to measure exit costs, since the availability of data points is very limited (23 countries)[15]. Using this method we build four indexes: (i) using only data from the World Bank Doing Business Database we create "WB closing a business index**",** explaining about 70% of total variance of the three variables that

[14] From WB Doing Business Database

[15] In this section, we compute all the indexes using the 47-country sample present in La Porta et. al. (1998). It would have been possible to compute the indexes from the World Bank data with as much as 141 observations. However, we decided to use the same countries than La Porta et. al. (1998) to ensure comparable results. Another difficulty is present in the number of countries for which an EPL measure is available from the OECD Employment Outlook: only 23 countries are present both in OECD EPL measure and our sample of 47 countries. Therefore, we compute the indexes using Principal Component Analysis using 47 data points, but in the regression analysis that follows we are only able to use 23 observations. In appendix C the same analysis is conducted but using only the 23 relevant countries that are ultimately used in the regression analysis. The qualitative results are identical to the ones presented in this section and the following ones.

Original Variables & **Partial Indexes**	WB EPL	WB closing a business	creditor rights	legal environment
difficulty of hiring	**0,291521**			
rigidity of working hours	**0,311872**			
difficulty of firing	**0,344321**			
cost to fire	**0,346255**			
time necessary to close a business		**0,394086**		
cost of closing a business (% estate)		**0,344801**		
% recovered debt after closure		**-0,45289**		
automatic stay on assets after default			**0,428896147**	-0,153253571
restrictions for going into reorganization			**0,400237241**	-0,122391973
management doesn't stay			**0,306217289**	-0,231767046
efficiency of judicial system			0,288906921	**0,252088301**
rule of law			0,169137903	**0,321233921**
risk of contract repudiation			0,18653223	**0,313746754**
total variance explained by components (%)	0.59425	0.69546	.28501	.46638
variance explained by components (cumulative %)	0.59425	0.69546	.75139	
Extraction Method: Principal Component Analysis.				

Table 2: Component Score Coefficient Matrix

originate it and an EPL measure, explaining about 60% of total variance of the original variables; (ii) the variables from La Porta et. al. (1998) originate two components that we call "creditor rights index" and "legal environment index" due to the variables that have greatest weight in each of these indexes, which explain 75% of the variance of the original variables. Table 2 shows the component score coefficients. See tables 5 to 9 and 10 to 14 in appendix A.2. for the principal component analysis output. The index values are in the appendix A.2.

3 On the Relations Between Employment Protection and Efficiency of Bankruptcy Procedures

Governments may want to intervene in the labor market due to social pressure. This social pressure is all the greater, the larger is the number of unemployed people. In cases where labor markets are sclerotic, being difficult to find a job match worker-employer, the incentive for Governments to intervene is even larger.[16]

If the bankruptcy process is very lengthy and being it the only alternative after a private settling between creditors and debtor has not been able to achieve a feasible result, then firms face a high exit cost. The lengthier the bankruptcy process, the higher the exit cost. We assume that the cost of private negotiation is even higher due to large asymmetry of information.

If the government wants to intervene and prevent unemployment, a subsidy would have to be paid to the firm to avoid laying-off of workers. This is conceptually equivalent to setting costs on the act of firing. Under high exit costs, the subsidy that would have to be paid to avoid a firm laying-off its workers would be lower than under the case of low exit costs, since the firm is less willing to leave the market in this case. Therefore, we argue that the cost of employment protection is lower when high exit costs for the firm are higher. Hence,

[16] This generates a vicious circle: the more sclerotic is the labor market, the large the incentive (politically) to intervene. But, the higher the degree of intervention, the more sclerotic the labor markets get. About this problem, see Blanchard and Portugal (2001).

if governments want to protect employment it would be efficient to accompany such measures with inefficient bankruptcy laws. In consequence, we formulate the following hypothesis for testing:

Hypothesis 1: higher levels of employment protection are in average associated with inefficient bankruptcy systems

However, given the perspective of Anglo-Saxon countries, typically non-interventionist by legal tradition, any relation that may be thought connecting bankruptcy procedures and employment protection is meaningless. Therefore, the hypothesis against which we are testing our theory is:

Hypothesis 2: absence of relationship between employment protection and efficiency in bankruptcy

Given the low quality of data, the inexistence of a meaningful relationship can mean either that the sample quality is preventing us to find such a relationship even though it exists, or that the relation really has no empirical confirmation. However, despite the low quality of the data, we do find a relationship, but only among the civil law countries. The analysis of the results follow.

4 Analysis of Results

Given the values of the EPL indexes and of the several bankruptcy efficiency indexes values defined above, figures 1, 2 and 3 are presented, showing scatter diagrams. All of them share the same feature: Denmark, Switzerland, Ireland, Australia, New Zealand, Canada, United States and United Kingdom form a group of observations clearly detached from those of the remaining countries in the sample. Except for Denmark and Switzerland, this division coincides with the legal family: civil law countries are grouped apart from common law countries as far as the association between EPL and legal efficiency in bankruptcy are concerned.

We consider Denmark and Switzerland to be special cases of civil law countries and choose not to include them in the analysis that follows. In the appendix, the same analysis is conducted, but including those countries in the group of civil law countries. We show that the qualitative conclusions are identical, but less significant due to the limited number of available data points. Since Denmark and Switzerland are detached from the group of civil law countries, it is only natural that the conclusion about the relation between variables in these countries loose significance if Denmark and Switzerland are included in the same group.

Another feature that all scatter diagrams present is the apparent relation between EPL and the several measures of bankruptcy efficiency in the group of civil law countries, while in the group of common law countries there is no relation: in figures 1 and 2 higher values of EPL are associated with lower levels of Creditor Rights Index and Legal Environment Index, suggesting that countries where creditors are least protected and legal environment is less efficient, employment protection levels are stricter. However, in the group of common law

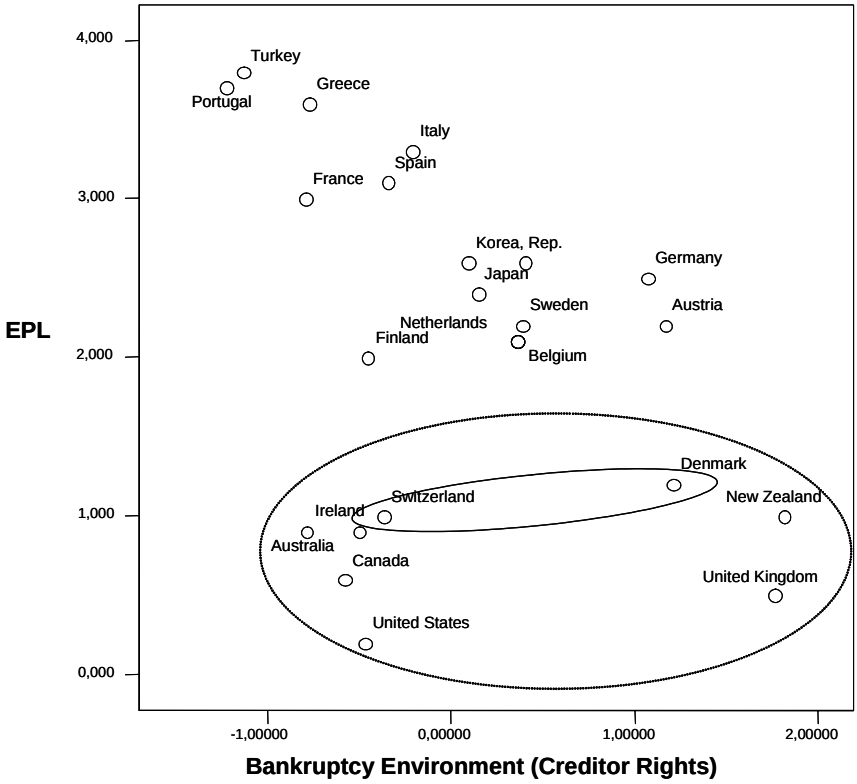

Figure 1: Vertical Axis: OECD EPL index (1999); Horizontal Axis: Creditor Rights index computed from LaPorta *et al* (1998)

countries, the levels of employment protection are low, irrespective of the levels of creditor rights index and legal environment index.

The striking feature of these results is that they are also evident when we use data from a different source. When we analyze the relation between EPL and bankruptcy efficiency, calculated using the World Bank 2004 database, we find exactly the same pattern: no significant relation among common law countries (with Denmark and Switzerland detached from the rest of the sample of civil law countries) and the above mentioned trend; civil law countries with an inefficient bankruptcy law tend to be more protective of labor. This is clear in figure 3.

These features, although analytical testing is needed, point to the fact that legal family is an important factor determining the existence of relationships between employment protection policy and factors determining efficiency in bankruptcy. Civil law countries do seem to have the necessary ingredients to cause such a relation to emerge (except for Denmark and Switzerland)[17], while it does not exist among common law countries.

To analyze the relation between employment protection and efficiency of bankruptcy law we estimate the following models:

$$EPL_i = \beta_0 + \beta_1 CR_i + \beta_2 LE_i + \delta_0 D_i + \delta_1 D_i CR_i + \delta_2 D_i LE_i + u_i \quad (1)$$

[17] See Appendix B.

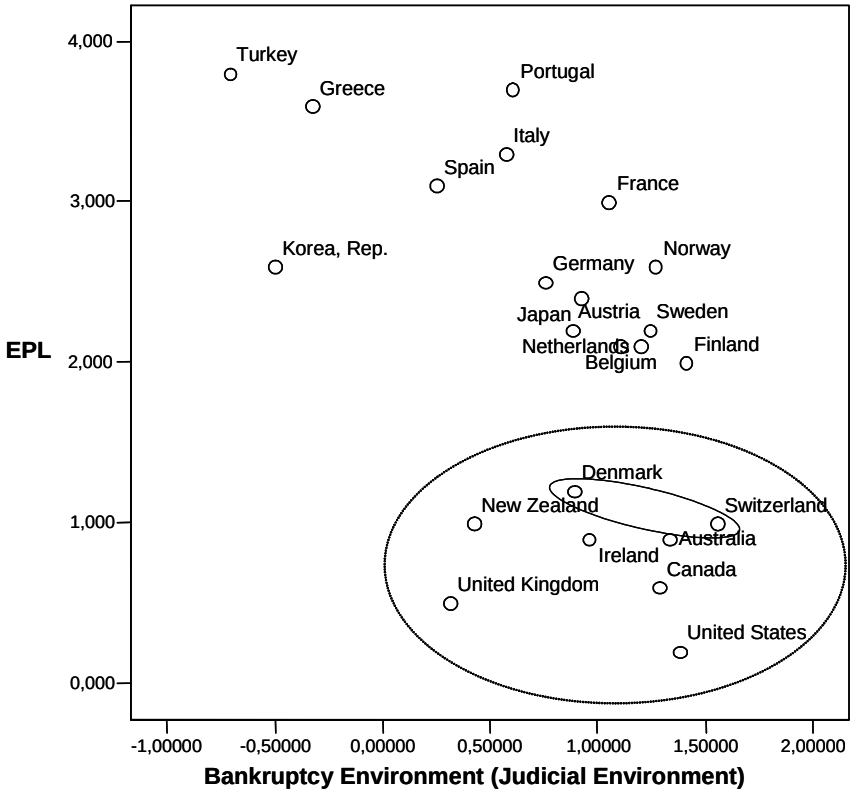

Figure 2: Vertical Axis: OECD EPL index (1999); Horizontal Axis: Judicial Environment index computed from LaPorta *et al* (1998)

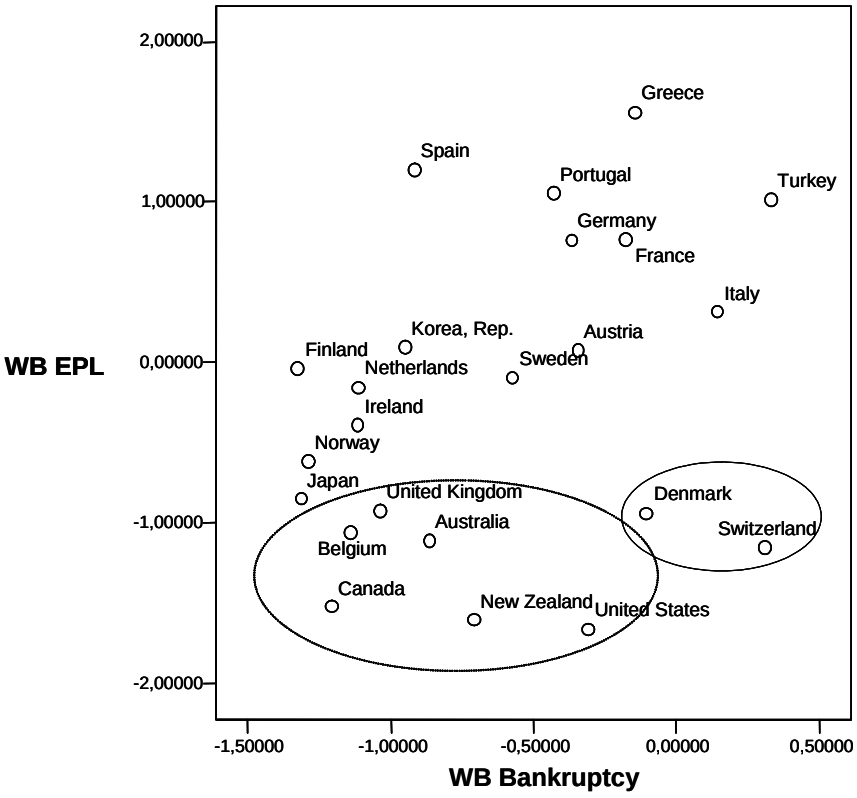

Figure 3: Vertical Axis: EPL index computed from data from the World Bank (2004); Wordbank Efficiency in Bankruptcy index computed from data from the World Bank (2004)

Dependent Variable: EPL				
Method: Least Squares				
Included observations: 21				
Variable	Coefficient	Std. Error	t-Statistic	Prob
C	2.985645	0.136703	21.84030	0.0000
LE	-0.414066	0.152828	-2.709352	0.0162
CR	-0.482233	0.141938	-3.397495	0.0040
D	-1.678072	0.851041	-1.971788	0.0674
D*LE	-0.203423	0.823890	-0.246906	0.8083
D*CR	0.297524	0.342853	0.867788	0.3992
R-squared 0.924683			Mean dependent var 2.157143	
Adjusted R-squared 0.899577			S.D. dependent var 1.099350	
S.E. of regression 0.348379			Akaike info criterion 0.963905	
Sum squared resid 1.820519			Schwarz criterion 1.262340	
Log likelihood -4.120998			F-statistic 36.83166	
Durbin-Watson stat 1.273663			Prob(F-statistic) 0.000000	

Table 3: Regression Analysis using data from La Porta (1998) and OECD (1999)

$$WB\_EPL_i = \alpha_0 + \alpha_1 WBI_i + \gamma_0 D_i + \gamma_1 D_i WBI_i + u_i \tag{2}$$

In this model, EPL stands for the OECD employment protection legislation index, benchmarked 1999, WB_EPL is the EPL index computed using the World Bank Doing Business Database, WBI is the index computed from the World Bank Doing Business Database, benchmarked to 2004, and LE and CR are the indexes computed from La Porta et. al. (1998) on legal environment and creditor rights, respectively, which relates to data gathered between the early 1980's and 1990's. Variable D is a dummy variable equal to 1 if country i belongs to the common law legal family.

As stated above, WBI increases with bankruptcy law inefficiency, therefore we anticipate a positive value for parameter α_1. But, CR and LE increase with greater creditor protection and efficiency of legal system respectively, therefore we anticipate negative values for parameters β_1 and β_2.

If there is any relation at all between EPL and bankruptcy law efficiency among civil law countries, we expect to reject the null $\beta_1 = \beta_2 = 0$ in model 1 and $\alpha_1 = 0$ in model 2. Also, if such a relation does not exist among common law countries we expect not to reject the null $\beta_1 + \delta_1 = \beta_2 + \delta_2 = 0$ in model 1 and not reject the null $\alpha_1 + \gamma_1 = 0$ in model 2. Tables 3 and 4 show the regression results for each model.

In regression presented in table 3, for the null $\beta_1 + \delta_1 = \beta_2 + \delta_2 = 0$ the relevant test statistic is $F = 0.3445$ with a p-value of 0.73, yielding its non-rejection as expected. For the null $\beta_1 = \beta_2 = 0$ the relevant test statistic is $F = 16.59$ indicating a clear rejection of the null at less than 1% (p-value equal to 0.00016). In the regression presented in table 4, the estimated value for α_1 is clearly statistically different from zero, while the result of the test for $\alpha_1 + \gamma_1 = 0$ is $F = 1.24$, indicating a clear non-rejection (p-value equal to 0.28).

Model 1 is benchmarked late 1990's, while model 2 is benchmarked 2004: we therefore have two models, using different databases, from different sources, at different points in time, yielding approximately the same results. We conclude that better bankruptcy laws are associated with less stringent employment protection

Dependent Variable: WB_EPL				
Method: Least Squares				
Included observations: 21				
Variable	Coefficient	Std. Error	t-Statistic	Prob
C	0.891609	0.228714	3.898354	0.0012
WBI	0.958598	0.274189	3.496119	0.0028
D	-2.833438	0.745169	-3.802408	0.0014
D*WBI	-1.810863	0.813532	-2.225928	0.0398
R-squared 0.714918			Mean dependent var -0.145388	
Adjusted R-squared 0.664610			S.D. dependent var 0.972884	
S.E. of regression 0.563425			Akaike info criterion 1.860079	
Sum squared resid 5.396614			Schwarz criterion 2.059035	
Log likelihood -15.53083			F-statistic 14.21069	
Durbin-Watson stat 1.450997			Prob(F-statistic) 0.000069	

Table 4: Regression Analysis using data from the World Bank

legislation, but only among countries without a common law tradition. Amongst these, we could not find any significant relation.

5 A Few Comments

5.1 On Culture and Wealth

Following Stulz and Williamson (2003), we would expect that cultural values and the country's domestic income should influence the relation between EPL stringency and bankruptcy efficiency (in the sense given to it in this paper). Specifically, and also taking religion as a proxy for culture: (i) wealthier countries (measured by the logarithm of *per capita* GDP) should have freer labor markets, with smaller firing costs and, therefore, a lower degree of EPL stringency; (ii) Roman Catholic countries, being expected to be more interventionist, should both protect employment more and have a more inefficient bankruptcy system with a poorer creditor protection.

We have included the logarithm of *per capita* GDP as a regressor and also a dummy for catholic countries in our previous regressions. We conclude that our basic result is kept, but although the sign is correct, we do not find a significant effect of GDP on EPL. Also, the dummy variable for religion turns out as non-significant: we were unable to relate bankruptcy efficiency and EPL stringency dividing countries according to the main religion.

We also go a step further, making some hypothesis whether it is cultural diversity within a country that accounts for freer labor markets (i.e., smaller EPL stringency) and more efficient bankruptcy. We measure cultural diversity using the Herfindahl Index of Concentration. This index have a maximum value of 1 if 100% of the population practices the same religion and 0.25 if the population is equally distributed among the four identified categories (Protestant, Catholic, Muslim, other beliefs). We were unable to find a significant effect of cultural diversity in our model. Moreover, controlling both for GDP and for cultural diversity our result is still significant: greater bankruptcy efficiency is associated with lower EPL stringency only among civil law countries. See appendix D where we report the results using the World Bank Doing Business Database.

5.2 On Reverse Causality

Higher levels of employment protection result from labor pressure[18]. Higher unemployment typically creates higher labor pressure, so we expect that higher unemployment would induce higher employment protection stringency. However, the reverse is not true: following Blanchard and Portugal (2001), higher EPL increases unemployment duration, but decreases flows through unemployment, therefore both effects cancel out and there isn't evidence that higher EPL induces higher unemployment.

On the other hand, inefficient bankruptcy procedures may result either from a bad law design, lacking clarity and allowing for discretionary actions from the several parties involved, or from a poor enforcement of law. Laws with similar designs perform very differently according to the degree of enforcement. Moreover, the way courts function also influence the way the bankruptcy law is applied. Slow courts contribute significantly for the inefficiency of the bankruptcy system.

Although in Europe bankruptcy laws basic principles are very similar across countries [19] the practical effects are very different, as can be seen by the variance of the indicator on the efficiency of bankruptcy. Therefore, it seems that the inefficiency of a bankruptcy procedure, as we understand it, is not so much related to the design of the law itself, but to the circumstances under which it is applied, as far as the analised countries are concerned.

Such a conclusion is strengthened if courts are influenced by the local labor market context, as suggested by Ichino (2003). In that case, we expect in average more pro-worker decisions in countries with higher labor pressure. In the context of bankruptcy law this would mean either greater values of damages paid to workers when firms close or a greater effort to avoid job destruction, resulting in more bankruptcy cases ending in eventually lengthy recovery procedures rather than liquidation procedures. France is the example of such a case.[20]

Therefore, the conditions of local labor markets may influence both the stringency of employment protection and the length of a bankruptcy process. However, bankruptcy procedures may become lengthy either in order to avoid job destruction or due to the existence of very stringent employment protection legislation. The latter case creates a problem of reverse causality. According to our theory, inefficient bankruptcy systems decrease the cost of labor protection[21] and, therefore, interventionist countries will use an inefficient bankruptcy system to be able to increase labor market protection. Reverse causality will occur if bankruptcy systems are inefficient, meaning a lengthy and costly firm exit, due to high labour protection stringency.

If either courts or government respond to labor pressure, eventually for political reasons, and through that mechanism make bankruptcy systems inefficient (lengthy) then this should happen in all countries independently

[18] Roe (2003)

[19] Deloitte & Touche, Philippe & Partners (org., 2002)

[20] Biais and Mariotti (2003):
"[the] first stated objective [of French bankruptcy law] is to maintain distressed firms in operation and to avoid laying off workers. To reach this goal, judges enjoy large discretionary powers, to the point that they can unilaterally write-off the creditors' rights."

[21] Morgado, A. (2005)

of their degree of underlying interventionism. However, EPL responds to efficiency in bankruptcy only in interventionist countries. This suggests the following Simultaneous Equation Model, in population form:

$$\begin{cases} EPL = \gamma_1 B + \mathbf{z}_1 \boldsymbol{\delta}_1 + u_1 \\ B = \gamma_2 EPL + \mathbf{z}_2 \boldsymbol{\delta}_2 + u_2 \end{cases}$$

As before, EPL is the employment protection legislation stringency index and B is an index for bankruptcy efficiency; vectors $\mathbf{z}_i$ are exogenous variables (*per capita* GDP and unionized index and unemployment rate to control for labor market pressure).

In interventionist countries we should have $\gamma_1 \neq 0$ and $\gamma_2 \neq 0$, actually it should be the case of $\gamma_1 < 0$ if higher B means greater efficiency, as well as $\gamma_2 < 0$. In non-interventionist countries we should have $\gamma_1 = 0$ but $\gamma_2 \neq 0$ or even $\gamma_1 = \gamma_2 = 0$. Having a positive coefficient on unemployment in the first equation would confirm that unemployment creates pressure to increase EPL stringency, while in the second equation it would confirm that, through the legal system, higher unemployment would induce lengthier bankruptcy processes, following Ichino (2002).

To allow for identification of structural parameters, we exclude *per capita* GNP from the equation for EPL and exclude the unionization rate from the equation for bankruptcy efficiency. We estimate using GMM with White covariance matrix.[22]

Given the limitations imposed on the analysis due to data availability, we cannot run the tests using the sample of common law countries, taken as the non-interventionist group, as before. Therefore, we present the tests performed just in the rather small group of civil law countries, excluding for Denmark and Switzerland. Also, given the time structure of the data, we cannot run the tests using the date from La Porta *et al*, since the indexes measuring bankruptcy efficiency from this source date from the 1980's and 1990's, all previous to any of the EPL measures available. Therefore, we can say that reverse causality is not an issue on the results using data from La Porta *et al* and the OECD Employment Outlook.

We analyze reverse causality, therefore, using just data from the World Bank Doing Business Database. Estimation results suggest that in civil law countries, $\gamma_1 > 0$ but $\gamma_2 = 0$,[23] suggesting absence of reverse causality. The unemployment rate seems irrelevant.

Given the time structure of the data, we are assuming the presence of large lagged effects: e.g., percentage of union trade members in 1997, affects WBI in 2004. Notwithstanding, we cannot find evidence of reverse causality, thus validating the analysis in the previous section.

6 Conclusion

We find a positive relationship between bankruptcy law inefficiency and employment protection for civil law countries and no significant relationship for common law countries. These results suggest two observations.

[22] Although the properties of GMM estimation are very poor in small samples, under reverse causality, the least squares method used in the previous section would yield biased and inconsistent estimators.

[23] See appendix A, on the construction of WBI index.

System
Estimation Method: Generalized Method of Moments
Sample: 2 21 IF CL=0 AND DK=1
Included observations: 15
Total system (balanced) observations 30
Instruments: C UN1998 UNION1997 LOG(GDPPC)
White Covariance

	Coefficient	Std. Error	t-Statistic	Prob.
A(1)	1.116165	0.806519	1.383929	0.1803
A(2)	1.582982	0.732990	2.159624	0.0420
A(3)	0.041177	0.069134	0.595617	0.5575
A(4)	-0.004318	0.007674	-0.562735	0.5793
B(1)	1.069931	3.836035	0.278916	0.7829
B(2)	0.313428	0.567784	0.552021	0.5865
B(3)	0.002468	0.061492	0.040131	0.9684
B(4)	-0.188279	0.415934	-0.452667	0.6552

Determinant residual covariance	0.008205
J-statistic	1.00E-26

Equation: WB_EPL=A(1)+A(2)*WBI+A(3)*UN1998+A(4)*UNION1997
Observations: 15

R-squared	0.319843	Mean dependent var	0.274596
Adjusted R-squared	0.134346	S.D. dependent var	0.776971
S.E. of regression	0.722898	Sum squared resid	5.748397
Durbin-Watson stat	1.369176		

Equation: WBI=B(1)+B(2)*WB_EPL+B(3)*UN1998+B(4)*LOG(GDPPC)
Observations: 15

R-squared	0.454413	Mean dependent var	-0.643662
Adjusted R-squared	0.305616	S.D. dependent var	0.549189
S.E. of regression	0.457638	Sum squared resid	2.303756
Durbin-Watson stat	1.905450		

Figure 4: Using the World Bank Doing Business Database; WB_EPL is the index for employment protection stringency; WBI is the index for the efficiency of bankruptcy.

First, for more interventionist governments, a more inefficient bankruptcy law that increases the costs of exit for firms provides a stimulating environment to implement employment protection. Second, for less interventionist governments, the inefficiencies of bankruptcy procedures are unrelated to employment policies.

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http://rru.worldbank.org/DoingBusiness/Methodology/ClosingBusiness.aspx

A. Appendix

A.1. Data Description

A.1.1. The World Bank Doing Business Database

This database is benchmarked January 2004.

WB EPL Index[24] :

Every economy has a complex system of laws and institutions to protect the interests of workers and guarantee a minimum standard of living for its population. Doing Business focuses on the regulation of employment, specifically the hiring and firing of workers and the rigidity of working hours. The data on hiring and firing workers are based on a detailed study of employment laws and regulations, as well as relevant constitutional provisions. The employment laws of most countries are available online in the NATLEX database, published by the International Labor Organization. Constitutions can be found through the U.S. Law Library of Congress. In all cases, actual laws and secondary sources are used to ensure accuracy. Conflicting answers are further checked in two additional sources, including a local legal treatise on employment regulation. Secondary sources include the International Encyclopedia for Labor Law and Industrial Relations and Social Security Programs Throughout the World. Finally, all data are verified and completed by local law firms through a detailed survey on employment regulations.

To make the data comparable across countries, several assumptions about the worker and the business are employed. Following the OECD Job Study and the International Encyclopedia for Labor Law and Industrial Relations, the areas subject to statutory regulation in all countries were identified. Those include hiring of workers, conditions of employment, and firing of workers.

It is assumed that the worker is a non-executive, full-time male employee who has worked in the same company for 20 years; earns a salary plus benefits equal to the country's average wage during the entire period of his employment; has a nonworking wife and two children and the family resides in the country's most populous city; is a lawful citizen who belongs to the same race and religion as the majority of the country's population; and is not a member of the labor union, unless membership is mandatory.

It is assumed that the business is a limited liability company; operates in the country's most populous city; is 100 percent domestically owned; operates in the manufacturing sector; has 201 employees; and abides by every law and regulation, but does not grant workers more benefits than legally mandated.

All variables are indices having several components and taking values between 0 and 100, with higher values indicating more rigid regulation.

- **The Difficulty of Hiring index** (code: diffict_hire) measures (i) whether term contracts can only be used for temporary tasks; (ii) the maximum duration of term contracts; and (iii) the ratio of the mandated

[24] As described in http://rru.worldbank.org/DoingBusiness/Methodology/HiringFiringWorkers.aspx

minimum wage (or apprentice wage, if available) to the average value-added per working population. A country is assigned a score of 1 if term contracts can only be used for temporary tasks, and a score of 0 if term contracts can be used for any task. A score of 1 is assigned if the duration of term contracts is 3 years or less; 0.5 if the duration is between 3 and 5 years; and 0 if term contracts can last more than 5 years. Finally, a score of 1 is assigned if the ratio of minimum wage to average value added per worker ratio is higher than 0.75; 0.67 for ratios between 0.50 and 0.75; 0.33 for ratios between 0.25 and 0.50; and a score of 0 if the ratio is below 0.25.

- **The Rigidity of Hours index** (code: rigidt_hrs) has five components: (i) whether night work is restricted; (ii) whether weekend work is allowed; (iii) whether the workweek consists of five-and-a-half days or more; (iv) whether the workday can extend to 12 hours or more (including overtime); and (v) whether the annual paid vacation days are 21 days or less. If the answer is no on any of these questions, the country is assigned a score of 1, otherwise a score of 0 is assigned.

- **The Difficulty of Firing index** (code: diffict_fire) has eight components: (i) whether redundancy is not grounds for dismissal; (ii) whether the employer needs to notify the labor union or the labor ministry for firing one redundant worker; (iii) whether the employer needs to notify the labor union or the labor ministry for group dismissals; (iv) whether the employer needs approval from the labor union or the labor ministry for firing one redundant worker; (v) whether the employer needs approval from the labor union or the labor ministry for group dismissals; (vi) whether the law mandates training or replacement prior to dismissal; (vii) whether priority rules apply for dismissals; and (viii) whether priority rules apply for re-employment. If the answer to any question is yes, a score of 1 is assigned; otherwise a score of 0 is given. Questions (i) and (iv) have double-weight in the construction of the final index.

- **The Cost of Firing indicator** (code: fire_cost) measures the cost of advance notice requirements, and severance payments and penalties due when firing a worker, expressed in terms of weekly wages.

As announced in the World Bank Doingbusiness website, this methodology is developed in Botero et. al. (2004), and was adopted with changes.

Efficiency of Bankruptcy[25] :

As far as measuring the time and cost of insolvency proceedings, we use data available from the World Bank Doing Business Database. This database was created in a way such that it is comparable across countries. The data are derived from survey responses by local law firms when they were faced with an hypothetical business closure problem.

The hypothetical business is a limited liability company that operates in the country's most populous city; it is 100% domestically owned, of which 51% is owned by its founder, who is also the chairman of the supervisory

[25] As described in http://rru.worldbank.org/DoingBusiness/Methodology/ClosingBusiness.aspx

board (all other shareholders detain less than 1% of shares each). The business is run by a professional general manager. The business has downtown real estate as its major asset, on which it runs a hotel and has average annual revenue of 1000 times income per capita over the last three years. The business employs 201 people and 50 suppliers, each of whom is owed money for the last delivery. It borrowed from a domestic bank five years ago (the loan has 10 years to full repayment) and bought real estate (the hotel building), using it as a security for the bank loan. It has observed the payment schedule and all other conditions of the loan up to now, and has a mortgage with the current value of the mortgage principal being exactly equal to the market value of the hotel.

In January 2004, the business is experiencing liquidity problems. The company's loss in 2003 brought its net worth to a negative figure. There is no cash to pay the bank either interest or principal in full due on January, 2nd 2004. Therefore, the business defaults on its loan. Management believes that losses will be incurred in 2004 and 2005 as well. The bank holds a floating charge against the hotel in countries where floating charges are possible. If the law does not permit a floating charge, but contracts nevertheless commonly use some other provision to that effect, this provision is specified in the lending contract.

The business has too many creditors to renegotiate out of court. Its options are: (i) a procedure aimed at rehabilitation or any procedure that will reorganize the business to permit further operation; (ii) a procedure aimed at liquidation; (iii) selling the hotel, either as a going concern or piecemeal, either enforced through court (or a government authority like a debt collection agency) or out of court (receivership).

- **Cost Measure** (code: cost_close): The cost of the bankruptcy proceedings is calculated based on answers by practicing insolvency lawyers. If several respondents report different estimates, the median reported value is used. Costs include court costs, as well as fees of insolvency practitioners, independent assessors, lawyers, accountants, etc. Bribes are excluded. The cost figures are averages of the estimates in a multiple-choice question, where the respondents choose among the following options: 0-2 percent, 3-5 percent, 6-10 percent, 11-15 percent, 16-20 percent, 21-25 percent, 26-50 percent, and more than 50 percent of the estate value of the bankrupt business.

- **Time Measure** (code: time_close): Time is recorded in calendar years. It captures the average time to complete a procedure as estimated by insolvency lawyers. Information is collected on the sequence of the bankruptcy procedures, and whether any procedures can be carried out simultaneously. Delays due to legal derailment tactics that parties to the insolvency may use, in particular extension of response periods or appeals, are taken into account.

- **Recovery Rate** (code: rec_close): The recovery rate measures the efficiency of foreclosure or bankruptcy procedures. It estimates how many cents on the dollar claimants, creditors, tax authorities, and employees, recover from an insolvent firm. The calculation takes into account whether the business is kept as a going concern during the proceedings, as well as court, attorney and other related costs, and the discounted

value due to the time spent closing down. If the business keeps operating, no value is lost on the initial claim, set at 100 cents on the dollar. If not, the initial 100 cents on the dollar are reduced to 70 cents on the dollar. Then, the official costs of the insolvency procedure are deducted (1 cent for each percentage cost of the initial value). Finally, the value lost due to the time that the money remains tied up in insolvency procedures is taken into account, including the loss of value due to depreciation of the hotel furniture. Consistent with the international accounting practice, the discount rate of office furniture is taken to be 20 percent. In turn, the value of the furniture is assumed to be a quarter of the total value of assets. The recovery rate is the present value of the remaining proceeds, using end-2003 lending rates from the International Monetary Funds International Financial Statistics and supplemented with data from central banks.

This methodology is developed in "Efficiency in Bankruptcy", a forthcoming research project by Simeon Djankov, Oliver Hart, Tatiana Nenova, and Andrei Shleifer, as announced in the World Bank Doing Business website, but not available to the authors.

A.1.2. "Law and Finance" Variables Description[26]

- **Indicator of whether there is an automatic stay on assets in case of default** (code: no_stay_asset)**:** equals one if the reorganization procedure does not impose an automatic stay on the assets of the firm upon filing the reorganization petition. Automatic stay prevents secured creditors to gain possession of their security. It equals zero if such restriction does exist in the law. (source: Bankruptcy and Reorganization Laws)

- **Indicator of whether there are restrictions for going into reorganization** (code: restrict_reorgan)**:** equals one if the reorganization procedure imposes restrictions, such as creditors consent to file for reorganization. It equals zero if there are no such restrictions. (source: Bankruptcy and Reorganization Laws)

- **Indicator of whether management does not stay in reorganization** (code: manag_doesnt_stay)**:** equals one when an official appointed by the court, or by the creditors, is responsible for the operation of the business during reorganization. Equivalently, this variable equals one if the debtor does not keep the administration of its property pending the resolution of the reorganization process, and zero otherwise. (source: Bankruptcy and Reorganization Laws)

- **Index for the efficiency of the judicial system** (code: efficiency_judicial)**:** assessment of the efficiency and integrity of the legal environment as it affects business, particularly foreign firms, produced by the country-risk rating agency Business International Corporation. It may be taken to represent investors

[26] See La Porta et. al. (1998) for further details.

assessments of conditions in the country in question. Average between 1980-1983. Scale from 0 to 10, with lower scores lower efficiency levels. (source: Business International Corporation.)

- **Index for rule of law** (code: rule_of_law)**:** assessment of the law and order tradition in the country produced by the country-risk rating agency International Country Risk (ICR). Average of the months of April and October of the monthly index between 1982 and 1995. Scale from 0 to 10, with lower scores for less tradition for law and order.(La Porta et. al. (1998) changed the scale from its original range going from 0 to 6). (source: International Country Risk Guide)

- **Index for the risk of contract repudiation by Government** (code: contract_repud)**:** ICRs assessment of the risk of a modification in a contract taking the form of a repudiation, postponement, or scaling down due to budget cutbacks, indigenization pressure, a change in government, or a change in government economic and social priorities. Average of the months of April and October of the monthly index between 1982 and 1995. Scale from 0 to 10, with lower scores for higher risks. (source: International Country Risk Guide)

A.2. Index Construction

The following table present the index values used in section 4.

country	WB bankruptcy	WB_EPL	legal environment index	creditor rights index	Common Law	EPL OECD
Australia	-0,86801	-1,10476	1,33012	-0,49813	1	0,9
Austria	-0,34735	0,08321	0,88078	1,17171	0	2,2
Belgium	-1,14461	-1,05257	1,10302	0,36261	0	2,1
Canada	-1,20829	-1,51369	1,28373	-0,57578	1	0,6
Denmark	-0,10718	-0,93285	0,88981	1,21045	1	1,2
Finland	-1,32800	-0,03176	1,40825	-0,45168	0	2
France	-0,18146	0,77224	1,05001	-0,78980	0	3
Germany	-0,36932	0,76862	0,75741	1,07130	0	2,5
Greece	-0,14730	1,56143	-0,32690	-0,76863	0	3,6
Ireland	-1,11803	-0,38260	0,95738	-0,78511	1	0,9
Italy	0,14047	0,32299	0,57307	-0,21023	0	3,3
Japan	-1,31544	-0,84278	0,91969	0,14978	0	2,4
Korea, Rep.	-0,95363	0,10210	-0,50172	0,09662	0	2,6
Netherlands	-1,11686	-0,14996	1,20021	0,36587	0	2,1
New Zealand	-0,70980	-1,59565	0,42507	1,81768	1	1
Norway	-1,29227	-0,61084	1,26414	0,40387	0	2,6
Portugal	-0,43172	1,06039	0,60106	-1,22115	0	3,7
Spain	-0,92083	1,20466	0,25203	-0,34223	0	3,1
Sweden	-0,57611	-0,08745	1,24105	0,39015	0	2,2
Switzerland	0,30890	-1,14383	1,55563	-0,36406	1	1
Turkey	0,32950	1,01866	-0,71219	-1,13206	0	3,8
United Kingdom	-1,03895	-0,91973	0,31265	1,76260	1	0,5
United States	-0,31219	-1,65566	1,38161	-0,46752	1	0,2

Figure 5: Index data points.

The indexes computed to measure the efficiency of bankruptcy law, in the sense that we have attributed to it in this paper, and the index to measure EPL stringency based on data from the Worldbank Doing Business Database, use Principal Component Analysis. Each index, is actually, the country scoring yielded by such a statistical tool. Each score is a weighted average of the original variables. The weighting is computed so that the resulting weighted average maximises the total variance explained.[27]

Before the matrix of component score coefficients for each index, some diagnosis statistics are presented. In a good analysis, the anti-image correlation matrix should show high values in the main diagonal, high communalities and a high percentage of explained variance Communalities indicate the amount of variance of each variable that is explained by common factors, ie., shared, at least, with one other variable from the set of chosen variables. Each component coefficient is the correlation between the original variable and the principal component extracted. The scores were then computed using the regression method.

[27] For details on Principal Component Analysis, see Jobson (1991)

	time_close	cost_close	Rec_close
time_close	1		
sig. (2-tailed)	.		
N	47		
cost_close	0,276177332	1	
sig. (2-tailed)	0,060227759	.	
N	47	47	
Rec_close	-0,735075526	-0,586793174	1
sig. (2-tailed)	4,01747E-09	1,45802E-05	.
N	47	47	47

Table 5: Pearson Correlation Coefficients

	time_close	cost_close	Rec_close
time_close	0,497820709		
cost_close	0,282628236	0,496363109	
Rec_close	0,736294675	0,588969412	0,498773013

Table 6: Anti-Image Correlation Matrix

Communalities	Initial	Extraction
time_close	1	0,676042
cost_close	1	0,51752
Rec_close	1	0,892828

Table 7: Principal Component Analysis (Communalities)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2,086389294	69,54630981	69,54630981	2,086389294	69,54630981	69,54630981
2	0,73204144	24,40138133	93,94769114			
3	0,181569266	6,052308865	100			

Table 8: Principal Component Analysis: the one component extracted is able to explain almost 70 percent of total variance

	Component 1
time_close	0,822217597
cost_close	0,719388623
Rec_close	-0,944895511

Table 9: Principal Component Analysis (Component Matrix): each coefficient indicates de correlation between the original variable and the extracted component

	no stay on assets	restricted reorganization	manag. doesn't stay	efficiency of judicial	rule of law	contract repudiation
no stay on assets	1					
restricted reorganization	0,451737164	1				
Sig. (2-tailed)	0,001435618					
N	47					
manag. doesn't stay	0,575600579	0,377289377	1			
Sig. (2-tailed)	2,30798E-05	0,008940593				
N	47	47	47			
efficiency of judicial	-0,029229222	0,074246863	-0,157332638	1		
Sig. (2-tailed)	0,84536858	0,61990153	0,290891086			
N	47	47	47	47		
rule of law	-0,146699009	-0,104861139	-0,426565932	0,661233397	1	
Sig. (2-tailed)	0,325128872	0,483008954	0,002790353	4,20551E-07		
N	47	47	47	47	47	
contract repudiation	-0,103297878	-0,15444409	-0,336923463	0,666347217	0,882262939	1
Sig. (2-tailed)	0,489592583	0,299950554	0,020569337	3,17807E-07	2,51526E-16	
N	47	47	47	47	47	47

Table 10: Pearson Correlation Coeficients

	no stay on assets	restricted reorganization	manag. doesn't stay	efficiency of judicial	rule of law	contract repudiation
no stay on assets	0,617860837					
restricted reorganization	-0,318883808	0,624426119				
manag. doesn't stay	-0,48606568	-0,145727145	0,679744088			
efficiency of judicial	0,081094735	-0,199613302	-0,114844811	0,840191552		
rule of law	-0,021823663	-0,127433902	0,313670051	-0,216970475	0,65718254	
contract repudiation	-0,08103178	0,231572228	-0,070439059	-0,258552793	-0,764083127	0,656887699

Table 11: Anti-image Correlation Matrix

Communalities	Initial	Extraction
rule_of_law	1	0,891696
contract_repud	1	0,8725595
efficiency_judicial	1	0,7416967
manag_doesnt_stay	1	0,6948279
no_stay_asset	1	0,7218345
restrict_reorgan	1	0,5857353

Table 12: Principal Component Analysis (Communalities)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2,798305018	46,63841696	46,63841696	2,798305018	46,63841696	46,63841696
2	1,710045115	28,50075192	75,13916888	1,710045115	28,50075192	75,13916888
3	0,634202503	10,57004171	85,7092106			
4	0,452366942	7,539449033	93,24865963			
5	0,29831431	4,971905162	98,22056479			
6	0,106766113	1,77943521	100			

Table 13: Principal Component Analysis (Total Variance Explained): both components explain 75 percent of the total variance of data

	Component 1	Component 2
rule_of_law	0,898910492	0,289233445
contract_repud	0,877959116	0,318978529
efficiency_judicial	0,705419957	0,494043868
manag_doesnt_stay	-0,648554889	0,523645379
no_stay_asset	-0,428850236	0,733431761
restrict_reorgan	-0,342490072	0,684423739

Table 14: Principal Component Analysis (Component Matrix)

	diffict_hire	rigidt_hrs	diffict_fire	fire_cost
diffict_hire	1			
Sig. (2-tailed)	-			
N	49			
rigidt_hrs	0,437950399	1		
Sig. (2-tailed)	0,002078824	-		
N	47	47		
diffict_fire	0,38913435	0,425399047	1	
Sig. (2-tailed)	0,006863415	0,002874206	-	
N	47	47	47	
fire_cost	0,377908872	0,448520224	0,658526895	1
Sig. (2-tailed)	0,008819861	0,001567299	4,8671E-07	-
N	47	47	47	47

Table 15: Pearson Correlation Coefficients

	diffict_hire	rigidt_hrs	diffict_fire	fire_cost
diffict_hire	0,800349339			
rigidt_hrs	-0,297064928	0,793907049		
diffict_fire	-0,149345872	-0,138166467	0,687944367	
fire_cost	-0,103408681	-0,204088736	-0,553253597	0,684497879

Table 16: Anti-Image Correlation Matrix EPL WB

Communalities	Initial	Extraction
diffict_hire	1	0,480174
rigidt_hrs	1	0,549556
diffict_fire	1	0,669861
fire_cost	1	0,6774111

Table 17: Principal Component Analysis (Commulaties) EPL WB

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2,377000052	59,4250013	59,4250013	2,377000052	59,4250013	59,4250013
2	0,727802704	18,19506761	77,62006891			
3	0,555190831	13,87977077	91,49983968			
4	0,340006413	8,500160317	100			

Table 18: Principal Component Analysis (Total Variance Explained) EPL WB

	Component 1
diffict_hire	0,692945632
rigidt_hrs	0,741320212
diffict_fire	0,81845017
fire_cost	0,823049249

Table 19: Principal Component Analysis (Component Matrix) EPL WB

B. On Denmark and Switzerland

B.1. The market-oriented character of Denmark and Switzerland

Although civil law based, Denmark and Switzerland are special cases of countries with low EPL strictness due to their market oriented nature. According to OECD Employment Outlook, Switzerland is a country with an EPL strictness comparable to Ireland, Australia and New Zeland since the late 1980's and with little or no change throughout the 1990's. Therefore, Switzerland is not a country behaving in the typical interventionist way as the other civil law countries in this paper, which show much higher levels of intervention in the labour market. However, with Denmark things are no so clear cut. Also according to OECD, the EPL index has been considerably reduced throughout the 1990's as a result of major reforms in temporary employment regulation, while the degree of employment protection in regular contracts has been kept basically without any changes in relation to the late 1980's. Then, Denmark had an EPL index similiar to the one of Sweden in the 1990's. If no major reforms in temporary contracts were made, Denmark and Sweden would be very close as far as EPL stringency is concerned. Besides such a situation, Albæk (1999) stresses the lower firing costs in Denmark as oposed to Belgium, a very similar economy. Also it is pointed that the Danish industrial relations system is characterised by a small amount of interference from the state.

Therefore, we identify Denmark and Switzerland as special cases within the group of civil law countries, typically less interventionist than the other countries in the same group and so we decided to exclude them from the regression analysis presented in the main text above.

B.2. Inclusion of Denmark and Switzerland

For robustness check purposes, herein we present the analysis conducted in the text in section 4, but including Denmark and Switzerland in the group of countries with civil law legal tradition. The qualitative conclusion is essentially identical. However, it does loose significance, specially using data from the World Bank, which is only natural due to the limited number of data points and the way the observations from Denmark and Switzerland change the scatter: they are clearly detached from the rest of the sample (see figure 3). Tables 20 and 21 show the results.

Dependent Variable: EPL				
Method: Least Squares				
Included observations: 23				
Variable	Coefficient	Std. Error	t-Statistic	Prob
C	2.992734	0.186830	16.01847	0.0000
LE	-0.617286	0.199141	-3.099748	0.0065
CR	-0.466932	0.177493	-2.630707	0.0175
D	-1.685162	1.214349	-1.387708	0.1831
D*LE	-0.000203	1.173488	-0.000173	0.9999
D*CR	0.282223	0.479846	0.588153	0.5642
R-squared 0.839508			Mean dependent var 2.065217	
Adjusted R-squared 0.792304			S.D. dependent var 1.091958	
S.E. of regression 0.497645			Akaike info criterion 1.661599	
Sum squared resid 4.210062			Schwarz criterion 1.957815	
Log likelihood -13.10839			F-statistic 17.78482	
Durbin-Watson stat 1.434679			Prob(F-statistic) 0.000003	

Table 20: Regression Analysis using data from La Porta (1998) and OECD (1999); the joint significant test for the coefficients of LE and CR is F=13.01, yielding a clear rejection, though less powerful than in section 3; the homologous test for the coefficients of LE and CR in the group of common law countries is F=0.159, indicating absence of a relation between EPL and bankruptcy efficiency, as expected.

Dependent Variable: WB_EPL				
Method: Least Squares				
Included observations: 23				
Variable	Coefficient	Std. Error	t-Statistic	Prob
C	0.359797	0.264820	1.358646	0.1902
WBI	0.430995	0.336259	1.281735	0.2154
D	-2.301626	1.008634	-2.281923	0.0342
D*WBI	-1.283261	1.103579	-1.162817	0.2593
R-squared 0.443423			Mean dependent var -0.223036	
Adjusted R-squared 0.355542			S.D. dependent var 0.963148	
S.E. of regression 0.773197			Akaike info criterion 2.480205	
Sum squared resid 11.35884			Schwarz criterion 2.677683	
Log likelihood -24.52236			F-statistic 5.045740	
Durbin-Watson stat 1.454970			Prob(F-statistic) 0.009723	

Table 21: Regression Analysis including Denmark and Switzerland in the group of civil law countries; contrary to section 3 we cannot find a significant relation between EPL and bankruptcy efficiency in civil law countries: the relevant test equals 1.281735

Original Variables & **Partial Indexes**	WB EPL	WB closing a business	creditor rights	legal environment
difficulty of hiring	**0,273924458**			
rigidity of working hours	**0,317593341**			
difficulty of firing	**0,300922652**			
cost to fire	**0,278508285**			
time necessary to close a business		**0,447198146**		
cost of closing a business (% estate)		**0,281038625**		
% recovered debt after closure		**-0,530428884**		
automatic stay on assets after default			**0,58912205**	0,044429005
restrictions for going into reorganization			**0,349188439**	0,090205956
management doesn't stay			**0,456307562**	-0,106739377
efficiency of judicial system			0,028290601	**0,337808075**
rule of law			-0,134466597	**0,354845045**
risk of contract repudiation			0,086756133	**0,336472046**
total variance explained by components (%)	0.7267	0.5949	.23687	.44474
variance explained by components (cumulative %)	0.7267	0.5949	.68161	
Extraction Method: Principal Component Analysis.				

Table 22: Component Score Coefficient Matrix

C. Robustness Check

Herein we repeat the analysis conducted in the text in section 4, but with indexes constructed using just the 23 countries that are ultimately available for use. The reason for this is based upon an observation by Stephen and van Hemmen (2003). They conclude that the interactions between the size of the stock market and the investor protection laws depend on the quality of legal enforcement. Therefore, among countries with a reduced legal enforcement (like developing countries) the improvement of investor protection laws may have no effect on the increase of the size of the stock market. This observation is relevant here, because the indexes from sections 2 through 4 are calculated using 47 countries, among which countries with a very low legal enforcement. Since the interactions between the size of stock market and investor protection laws depend on the quality of legal enforcement, it is only reasonable to suppose that the same happens when we think of interactions between bankruptcy procedures efficiency and employment protection: the interactions identified in section 4 may be contaminated with the presence of countries with low legal enforcement in the calculation of the indexes.

To verify whether this is the case, we use here only the 23 countries present in section 4. We conclude that the qualitative results are identical, although a bit less obvious, specifically as far as the relation between EPL and the creditor rights index is concerned: although the same effect is still identifiable it is not as strong. We include Denmark and Switzerland in the civil law group.

In regression presented in table 23, for the null $\beta_1 + \delta_1 = \beta_2 + \delta_2 = 0$ the relevant test statistic is $F = 0.1392$ with a p-value of 0.871, yielding its non-rejection as expected. For the null $\beta_1 = \beta_2 = 0$ the relevant test statistic is $F = 12.4333$ indicating an extremely clear rejection of the null. In the regression presented in table 24, the estimated value for α_1 is not, however, statistically different from zero and the result of the test for $\alpha_1 + \gamma_1 = 0$ is $F = 0.667$, indicating a clear non-rejection (p-value equal to 0.4242). Therefore, the results are identical to the ones in appendix B. We also performed an analysis (not included here) using just the 21 cases

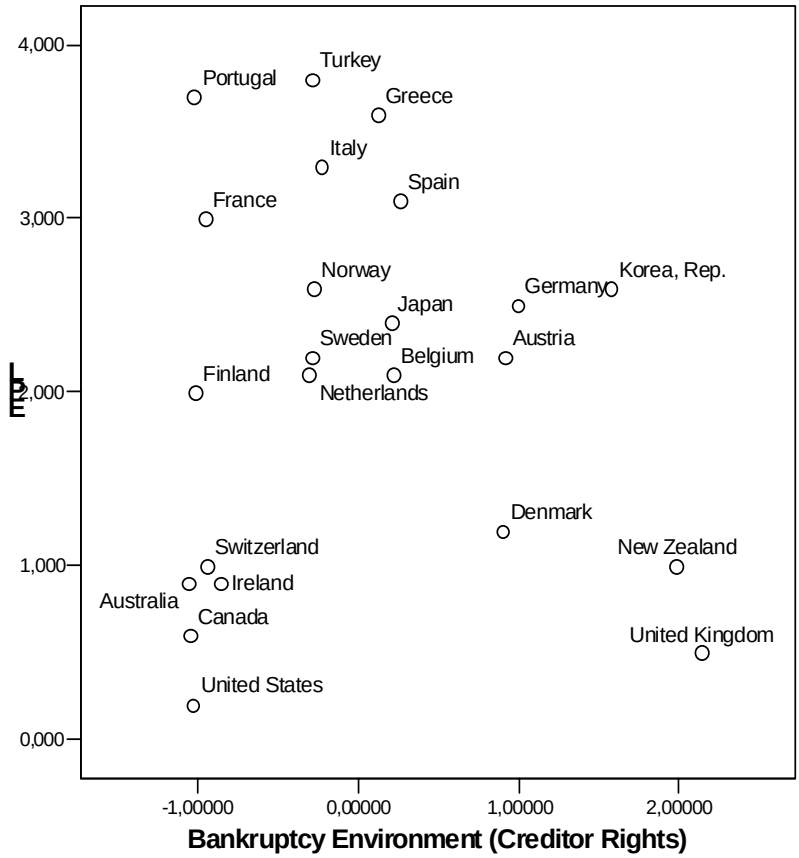

Figure 6: Vertical Axis: OECD EPL Index; Horizontal Axis: Creditor Rights (source: La Porta *et al* (1998))

Dependent Variable: EPL				
Method: Least Squares				
Included observations: 23				
Variable	Coefficient	Std. Error	t-Statistic	Prob
C	2.496918	0.122898	20.31703	0.0000
LE	-0.544951	0.110721	-4.921831	0.0001
CR	-0.189364	0.163889	-1.155440	0.2639
D	-1.705761	0.330853	-5.155642	0.0001
D*LE	0.160635	0.814579	0.197200	0.8460
D*CR	0.251803	0.226374	1.112332	0.2815
R-squared 0.834995			Mean dependent var 2.065217	
Adjusted R-squared 0.786464			S.D. dependent var 1.091958	
S.E. of regression 0.504593			Akaike info criterion 1.689329	
Sum squared resid 4.328439			Schwarz criterion 1.985545	
Log likelihood -13.42728			F-statistic 17.20544	
Durbin-Watson stat 1.1340820			Prob(F-statistic) 0.000004	

Table 23: Regression Analysis using data from La Porta (1998) and OECD (1999)

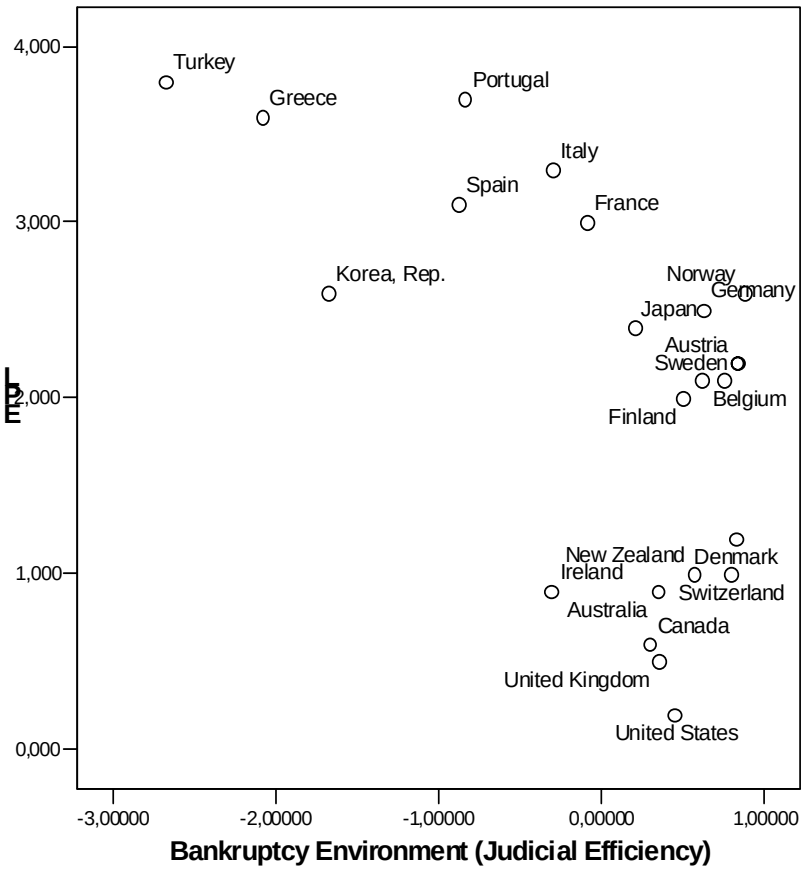

Figure 7: Vertical Axis: OECD EPL Index; Horizontal Axis: Legal Environment (source: La Porta *et al* (1998))

Dependent Variable: WB_EPL				
Method: Least Squares				
Included observations: 23				
Variable	Coefficient	Std. Error	t-Statistic	Prob
C	0.328665	0.198541	1.655401	0.1143
WBI	0.196645	0.189714	1.036537	0.3130
D	-1.541029	0.453341	-3.399276	0.0030
D*WBI	-0.640086	0.575098	-1.113003	0.2796
R-squared 0.433963			Mean dependent var 5.79E-17	
Adjusted R-squared 0.344589			S.D. dependent var 1.0000	
S.E. of regression 0.809575			Akaike info criterion 2.572155	
Sum squared resid 12.45281			Schwarz criterion 2.769633	
Log likelihood -25.57979			F-statistic 4.855572	
Durbin-Watson stat 1.468265			Prob(F-statistic) 0.011312	

Table 24: Regression Analysis using data from the World Bank

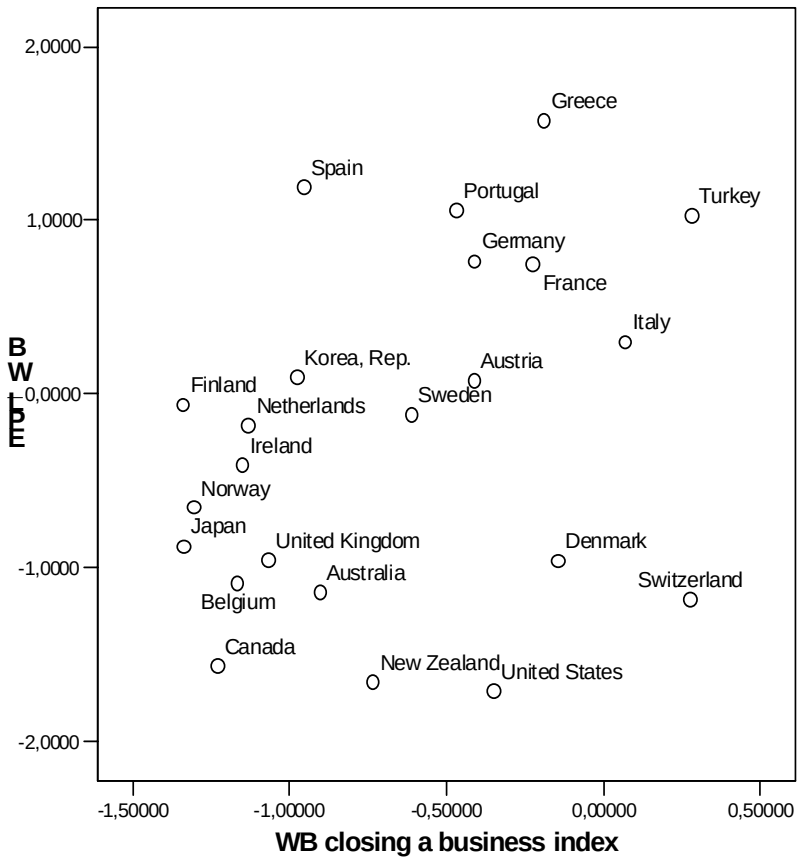

Figure 8: Vertical axis: World Bank EPL Index Horizontal axis: World Bank Bankruptcy Efficiency Index

as in section 4. Qualitative results are identical to the ones presented there: we do find a significant relation between EPL stringency and bankruptcy efficiency using data from the World Bank.

The details on the Principal Component Analysis for the construction of the indexes with just 23 observations follow.

country	WB bankruptcy	WB_EPL	legal environment index	creditor rights index	Common Law	EPL OECD
Australia	-0,47411	-0,92120	0,34622	-1,05530	1	0,9
Austria	0,37465	0,34922	0,83674	0,91655	0	2,2
Belgium	-0,94285	-0,86907	0,61643	0,21672	0	2,1
Canada	-1,06400	-1,36920	0,29539	-1,04420	1	0,6
Denmark	1,10355	-0,75483	0,82711	0,89793	1	1,2
Finland	-1,24459	0,23259	0,50146	-1,01527	0	2
France	0,81282	1,02752	-0,09203	-0,95293	0	3
Germany	0,41167	1,01901	0,62523	0,99200	0	2,5
Greece	0,88282	1,79128	-2,08739	0,12609	0	3,6
Ireland	-0,97218	-0,18476	-0,30814	-0,85838	1	0,9
Italy	1,24159	0,54660	-0,30377	-0,22805	0	3,3
Japan	-1,28208	-0,69623	0,20204	0,20556	0	2,4
Korea, Rep.	-0,54709	0,32547	-1,67922	1,57254	0	2,6
Netherlands	-0,79230	0,11746	0,74999	-0,30817	0	2,1
New Zealand	-0,07055	-1,41510	0,56696	1,97807	1	1
Norway	-1,18267	-0,34130	0,87700	-0,27542	0	2,6
Portugal	0,44394	1,36662	-0,84388	-1,02175	0	3,7
Spain	-0,56565	1,51125	-0,87793	0,26160	0	3,1
Sweden	0,13972	0,17796	0,83114	-0,28724	0	2,2
Switzerland	1,97558	-0,95901	0,79429	-0,93977	1	1
Turkey	1,80627	1,26100	-2,68105	-0,28649	0	3,8
United Kingdom	-0,75964	-0,74051	0,35487	2,13483	1	0,5
United States	0,70509	-1,47479	0,44854	-1,02892	1	0,2

Values of the indexes computed just with the information from the 23 relevant countries

Correlations	time_close	cost_close	Rec_close
time_close	1		
Sig. (2-tailed)	.		
N	23		
cost_close	-0,00744821	1	
Sig. (2-tailed)	0,973093491	.	
N	23	23	
Rec_close	-0,66550276	-0,42203014	1
Sig. (2-tailed)	0,000529092	0,044861752	.
N	23	23	23

Pearson correlation coefficients

Anti-image Correlations	time_close	cost_close	Rec_close
time_close	0,379077564		
cost_close	0,426073393	0,25934498	
Rec_close	0,737566842	0,57208122	0,416142562

Anti-image correlation coefficients: the values in the main diagonal are somewhat low. However, high communalities indicate that the analysis may proceed

Communalities	Initial	Extraction
time_close	1	0,925679794
cost_close	1	0,969582653
Rec_close	1	0,896157377

Communalities: high values indicate that the original variables are highly correlated with common factors

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1,7846827	59,48942336	59,48942336	1,7846827	59,48942336	59,48942336
2	1,00673712	33,5579041	93,04732746	1,00673712	33,5579041	93,04732746
3	0,20858018	6,95267254	100			
Extraction Method: Principal Component Analysis.						

Component 2 ignored: eigenvalue marginally over 1 and it is essentially composed by variable cost_close, which is not significantly correlated with the other two. Moreover, component 1 is the linear combination of the original variables that account for the greater proportion of the variance in the data. Extracting only component 2, communalities become: 0.637 (time_close); 0.252 (cost_close); 0.896 (rec_close). Variable cost_close, in this case, actually has a very marginal contribution for the analysis.

Component Score Coefficient Matrix		
Component	1	2
time_close	0,447198146	-0,533717352
cost_close	0,281038625	0,841687361
Rec_close	-0,530428884	-0,004017036
Extraction Method: Principal Component Analysis.		

Score coefficients

Component	1	2
time_close	0,798106796	-0,53731307
cost_close	0,501564772	0,847357912
Rec_close	-0,94664725	-0,0040441
Method: Principal Component Analysis.		

Components extracted: only component 1 is relevant

Correlations	diffict_hire	rigidt_hrs	diffict_fire	fire_cost
diffict_hire	1			
Sig. (2-tailed)	.			
N	23			
rigidt_hrs	0,629189026	1		
Sig. (2-tailed)	0,001298115	.		
N	23	23		
diffict_fire	0,579528405	0,811723597	1	
Sig. (2-tailed)	0,003754043	2,58379E-06	.	
N	23	23	23	
fire_cost	0,531756029	0,678505055	0,564625764	1
Sig. (2-tailed)	0,009015223	0,000372495	0,0050027	.
N	23	23	23	23

Pearson correlation coefficients for the construction of an EPL index

Anti-image Correlations	diffict_hire	rigidt_hrs	diffict_fire	fire_cost
diffict_hire	0,904211833			
rigidt_hrs	-0,229717744	0,70725228		
diffict_fire	-0,148222393	-0,6463963	0,749157692	
fire_cost	-0,180917414	-0,3956686	-0,004621357	0,848705442

Anti-image correlation show very high values on the main diagonal, indicating a good quality of analysis

Communalities	Initial	Extraction
diffict_hire	1	0,634001939
rigidt_hrs	1	0,852259283
diffict_fire	1	0,765136161
fire_cost	1	0,65539814

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2,90679552	72,66988807	72,66988807	2,90679552	72,66988807	72,66988807
2	0,47271544	11,81788601	84,48777409			
3	0,45113926	11,27848147	95,76625555			
4	0,16934978	4,233744446	100			
Extraction Method: Principal Component Analysis.						

Total Variance Explained: the extracted component accounts for almost 73% of the variance in the data

Component Score Coefficient	
Component	1
diffict_hire	0,273924458
rigidt_hrs	0,317593341
diffict_fire	0,300922652
fire_cost	0,278508285
Principal Component Analysis	

Component score coefficient

Component	1
diffict_hire	0,796242387
rigidt_hrs	0,923178901
diffict_fire	0,874720619
fire_cost	0,809566637
Principal Component Analysis	

Correlations	no_stay_asset	restrict_reorgan	manag_doesnt_s	efficiency_judicial	rule_of_law	contract_repud
no_stay_asset	1					
Sig. (2-tailed)	.					
N	23					
restrict_reorgan	0,280224269	1				
Sig. (2-tailed)	0,1952872	.				
N	23	23				
manag_doesnt_stay	0,27905263	-0,036980013	1			
Sig. (2-tailed)	0,197240346	0,866963648	.			
N	23	23	23			
efficiency_judicial	0,043983474	0,123564399	-0,021858015	1		
Sig. (2-tailed)	0,842051512	0,574315583	0,921143873	.		
N	23	23	23	23		
rule_of_law	-0,023342657	0,125861088	-0,388085354	0,834278043	1	
Sig. (2-tailed)	0,915805675	0,567165543	0,067267782	7,52157E-07	.	
N	23	23	23	23	23	
contract_repud	0,214167452	0,141783135	-0,125000864	0,749389125	0,768208999	1
Sig. (2-tailed)	0,326454081	0,518718944	0,569838956	3,86382E-05	1,86417E-05	.
N	23	23	23	23	23	23

Pearson correlations: variables associated with creditors rights have a very poor performance

Anti-image Correlations	no_stay_asset	restrict_reorgan	manag_doesnt_s	efficiency_judicial	rule_of_law	contract_repud
no_stay_asset	0,422735215					
restrict_reorgan	-0,293264037	0,566979233				
manag_doesnt_stay	-0,264590194	0,094550076	0,232526322			
efficiency_judicial	0,149824595	-0,063609367	-0,568027044	0,577204757		
rule_of_law	0,022113322	-0,004266177	0,638556833	-0,735996901	0,571865001	
contract_repud	-0,317235226	0,033484285	-0,049256262	-0,208062721	-0,371451967	0,812051225

Anti-image correlations: low values in the main diagonal associated with creditor variables rights

Communalities	Initial	Extraction
no_stay_asset	1	0,715077586
restrict_reorgan	1	0,304228579
manag_doesnt_stay	1	0,50169642
efficiency_judicial	1	0,814191744
rule_of_law	1	0,933126201
contract_repud	1	0,821363102
Extraction Method: Principal Component Analysis.		

Variable "restrict_reorgan" is very poorly correlated with underlying common factors

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2,668466389	44,47443981	44,47443981	2,668466389	44,47443981	44,474439
2	1,421217244	23,68695407	68,16139389	1,421217244	23,68695407	68,161393
3	0,982451642	16,37419404	84,53558793			
4	0,615395696	10,25659494	94,79218287			
5	0,227845036	3,797417272	98,58960014			
6	0,084623992	1,410399862	100			
Extraction Method: Principal Component Analysis.						

Total Variance Explained: the two extracted components account for 68% of the variance in the data

Component Score Coefficient		
Component	1	2
no_stay_asset	0,044429005	0,58912205
restrict_reorgan	0,090205956	0,349188439
manag_doesnt_stay	-0,106739377	0,456307562
efficiency_judicial	0,337808075	0,028290601
rule_of_law	0,354845045	-0,134466597
contract_repud	0,336472046	0,086756133
Extraction Method: Principal Component Analysis.		

Component 1 associated with legal environment; component 2 associated with creditor rights

Dependent Variable: WB_EPL
Method: Least Squares
Included observations: 21

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.387672	2.866633	1.530601	0.1467
WBI	0.731498	0.313455	2.333660	0.0339
D	-2.385262	0.787650	-3.028327	0.0085
D*WBI	-1.374954	0.814629	-1.687828	0.1121
LOG(GDPPC)	-0.400046	0.278892	-1.434414	0.1720
H_REL	0.291325	0.681789	0.427295	0.6752

R-squared	0.768734	Mean dependent var	-0.145388
Adjusted R-squared	0.691645	S.D. dependent var	0.972884
S.E. of regression	0.540240	Akaike info criterion	1.841350
Sum squared resid	4.377888	Schwarz criterion	2.139785
Log likelihood	-13.33417	F-statistic	9.972058
Durbin-Watson stat	1.256286	Prob(F-statistic)	0.000235

Figure 9: H_REL is the Herfindahl Index for religion concentration; LOG(GDPPC) is the logarithm of per capita GDP; the other variables have the same definition as above.

Component	1	2
no_stay_asset	0,118557306	0,837270417
restrict_reorgan	0,240711561	0,49627263
manag_doesnt_stay	-0,284830439	0,648512175
efficiency_judicial	0,901429495	0,04020709
rule_of_law	0,946892076	-0,191106247
contract_repud	0,897864345	0,123299312
Extraction Method: Principal Component Analysis.		

D. On Culture and Wealth

Results using the World Bank Doing Business Database, to test for effects of culture and wealth.

	GDPpc (US $ La Porta)	H_Rel	Union(1997) %	Unemployment (OECD, 1998)
Australia	17500	0,36	30,25523373	7,780218076
Austria	23510	0,79	38,90634821	5,657601263
Belgium	21650	0,82	56,04180274	9,339420934
Canada	19970	0,36	32,26546497	8,351474501
Denmark	26730	0,91	75,63304276	4,87393289
Finland	19300	0,87	79,39097336	11,42563521
France	22490	0,62	9,805378101	11,51464258
Germany	23560	0,37	26,98227096	8,721184179
Greece	7390	0,96	28,5646613	11,41784502
Ireland	13000	0,91	44,34222631	7,593917574
Italy	19840	0,72	36,23167982	11,94350686
Japan	31490	0,97	22,78797997	4,104748019
Korea, Rep.	7660	0,72	11,07132199	6,954685458
Netherlands	20950	0,38	25,17859978	4,235419344
New Zealand	12600	0,37	23,63112392	7,453416149
Norway	25970	0,96	55,5331992	3,173499375
Portugal	9130	0,89	24,27944862	4,980430142
Spain	13590	0,93	15,71059944	14,99728993
Sweden	24740	0,56	84,62417834	6,522109493
Switzerland	35760	0,47	22,59389671	3,37073044
Turkey	2970	0,98	29,49038357	6,723885284
United Kingdom	18060	0,52	32,0507804	6,248851957
United States	24740	0,35	13,63724311	4,506046032

Figure 10: The Herfindahl Index for religion concentration (H_REL=1 if 100% of a country's population practices the same religion; H_REL=0.25 if the population is equally scattered among the four cathegories identified: protestant, catholic, muslim, other)