Institutional environment and capital structure: evidence on EU companies

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Abstract

LLSV (1997) recently opened a wide research avenue when they supported the idea that a sizeable chunk of economic and financial heterogeneity across countries stems from differences in legal origins. In line with this stream of literature, the present article gives evidence on the fact that corporate capital structures are substantially impacted by the legal systems in which they operate. To the best of our knowledge, it is one of the first study providing conclusive results with a statistical cross-country sample from ten Members of the European Union. Furthermore, the results give evidence on a clear cut between the smaller and the larger companies: the capital structures are impacted by the legal framework in both cases but in different ways: the smaller firms have a higher leverage capability in a legal environment oriented towards creditor rights. By contrast, the larger companies seem more prone to switch, in the same context, towards a more intense financing by own funds.

Corporate decisions are often studied without any consideration of the institutional context in which they take place. A number of precepts for corporate governance are formulated and tested on samples of domestic firms (and the most often on US companies) and lead to general rules valid throughout the world. Institutional Economics, however, reminds that the design of any organizational arrangement is encapsulated within an institutional environment (North 1981; Williamson 1991). In this perspective decision makers can face severe difficulties as they have to produce general rules in a heterogeneous institutional framework. Ignoring that could lead to misleading assumptions.

The present research addresses this issue through the lens of capital structure at a firm's level. Variations across countries in corporate finance are well known by academics but remain a highly neglected topic too. International differences are often reduced to accounting discrepancies or country "folklore" (Rajan and Zingales, 1998). Recently, La Porta, Lopez-de-Silanes, Shleifer and Vishny (LLSV, 1997; 1998) proposed, however, to view international differences through the perspective of legal rules implemented by the countries. The main objective of the research is to study at a microeconomic level the impact of national legal systems on the financial structures of firms in 10 European countries. A series of regressions is run to test the effects of legal variables on indebtedness. The analysis of results suggests some comments on the influence of legal rules. This paper clearly shows that corporate financial structures are not independent from their legal framework. But the results should be differentiated by corporate size class. Facing risk aversion from lenders, the smaller companies benefit from a legal framework designed to support creditor rights. On the grounds of the bargaining power they can afford, the larger companies prefer to lower

their debt ratio in favor of other sources of financing as they have more trade-off opportunities.

In the first section of the paper the general background is presented. The hypothesis about the influence of legal systems on external finance and the effects at a micro-level are detailed. The second section describes the data and provides descriptive results. The last section gives evidence through a set of regressions differentiating companies by size.

GENERAL BACKGROUND

Legal systems and the development of finance

“Why do some countries have so much bigger capital markets than others?” It is with this question that La Porta, Lopez-de-Silanes, Shleifer and Vishny (LLSV, 1997) open their article about the legal determinants of external finance. Their basic assumption boils down to the idea that the differences in the nature and the efficiency of financial systems around the world is likely to come from differences in investor protections against expropriation by insiders as reflected by legal rules and the quality of enforcement.

In particular, LLSV (1998) single out four legal origins throughout the world: English, French, German and Scandinavian. English law is common law made by

judges and introduced into legislature afterwards. By contrast, the three other legal origins are more based upon Roman law. Their computation supports the widespread opinion that the English system is much more oriented towards the protection of investors. In German and Scandinavian countries, a particular attention is made in favor of the protection of creditor rights. In French-style countries, the investor rights are clearly lower than they are in the other legal systems.

LLSV (1997) give evidence in favor of the hypotheses they suggest. Their empirical findings show that civil law, and especially French-civil law countries, have both the weakest investor protection and the least developed capital markets. Such conclusions, however, are less sound for creditors than for shareholders. Moreover, the results are mainly provided at a macro-economic level.

An empirical test is made at a micro-economic level but, as the authors said, the results appear very poor. They do not manage to find significant relations between the legal systems and the corporate capital structures. Their main explanation stems from the structure of their international sample: most of the firms are large enterprises (LEs) and they are apt to benefit from many sources of financing, inside and outside their home country. By contrast, Small and Medium sized enterprises (SMEs) are reputed not to have the same opportunities and are thus much more likely to be dependent on their legal system. Unfortunately this common sense hypothesis is still lacking information to verify.

The breakthrough approach developed by LLSV has led to a series of comments and criticisms (Mesnard 2000). Most of them point out the crude classification in terms of

legal origins. For instance, Coffee (1991) showed that, at the beginning of the century, the legal systems were already different but the financial systems were very similar among the main capitalist countries. Another stream of comments concerns the true causality between legal systems and the development of external finance. Rajan and Zingales (1999) suggest that the minority shareholder rights have been mainly induced by their growing role in the financial system. The inverse causality ("The definition of minority shareholder rights has strongly supported the development of these investors") is very unlikely.

Empirical evidence may also be criticized on several aspects. Many indicators used by LLSV are dummy variables or scales with few items. They are built upon purely formal sources of information or sources oriented towards specific goals – for instance, guides for investors (for a detailed listing of sources, see LLSV 1996). We can thus wonder whether these very synthetic indexes are really unbiased or do not provide a very partial view. Moreover, at a micro-level, the relevance of the empirical tests is questionable, apart from the size issue. It seems quite natural to find in the capital structure of firms the blueprint of external financing – as firms are on the demand-side here. But a cross-country sample of firms throughout the world is likely to face multiple disturbances (e.g. accounting discrepancies, degree of corporate internationalization, etc…). Because of these difficulties, the mitigated results are not so surprising.

In a nutshell, LLSV's approach provides one of the first attempts to introduce the legal topic into the economics field with measures and empirical evidence.

Methodological and empirical limits are real but they propose useful tools to tackle a number of pending questions.

Creditor Rights and Corporate Finance

This paper endeavors to go further on one specific topic LLSV do not truly explore through the following question: “Are capital structures of SMEs really much more affected by the legal system of their home country than LEs?” The research is focused on Western European countries. European countries are historically at the source of the four legal systems described by LLSV and their national regulations are still deeply shaped by their historical origins. On the other hand, the arena of European business has been driven for several decades by powerful convergence forces within the framework of the Single Market (and, more recently, the Euro currency). Consequently, the European field provides a unique opportunity to compare the possible impact of different legal systems on firms relatively homogenous in terms of economic development.

As the capital structure is mainly shared between own funds and debts, we choose to study it through the perspective of the corporate leverage. Most of the European firms – which mean mainly SMEs – have a restricted access to equity markets and mainly rely upon debt as regards external financing. Basically, the credit relationship is a contractual agreement between two parts: a borrower commits to reimburse a clearly defined amount on a regular basis for a fixed period. The most critical issue is here to know what happens in case of breach in this contractual relationship. As LLSV (1996)

explained, the most basic creditor right is undoubtedly the right to repossess collateral when a loan is in default.

In some countries, the law makes more difficult for the borrowers to repossess collateralised loans in order to limit liquidation cases and immediate consequences in terms of employment. The law can limit the right for a creditor to have or not a say in reorganization. But creditors likely to experience such losses may be more reluctant to finance companies and very eager to discriminate risky businesses. It thus follows that the differences in creditor rights by country alter the credit relationship between creditors and borrowers and, consequently, the capital structures.

LLSV (1998) describe creditor rights in a four-item scale based upon the sum of four dummies: the first dummy indicates if the country does not impose an automatic stay in case of reorganization procedure; the second one whether the country assures the secured creditors the right to collateral in reorganization; the third one if the management needs creditor consent to file for reorganization; and the last one whether the management is replaced during the reorganization procedure (a more detailed reasoning is exposed presented in the LLSV paper mentioned just above). It is claimed that the higher the index, the higher the creditor rights.

It is also worthwhile to note that some countries impose the existence of legal reserve requirements. This constraint forces firms to maintain a certain level of capital to avoid an automatic liquidation. It protects creditors when they have few powers. Moreover, some countries are stricter to enforce the rules defined by the laws. The quality of legal enforcement may also influence the financial structure of firms. If the

legal rules are not enforced despite a formal claim, such a situation erases the legal foundations. Lenders and borrowers do not trust the functioning of courts and cannot really rely upon the contractual terms they have designed (table 1).

Table 1

Description of legal variables

Variable	Description
Creditor rights (CREDIT)	Index synthesizing the level of creditor rights in a country. It is the sum of four dummies entitled "No automatic Stay on Assets", "Secured Creditors First Paid", "Restrictions for going into Reorganization" and "Management does not Stay in Reorganization"
Legal reserve (LEGRES)	It is the percentage of total share capital mandated by Corporate Law to avoid the Company dissolution of an existing firm. It takes a value of zero for countries without such Commercial Code restriction.
Rule of law (RULAW)	Assessment of the law and order tradition in the country produced by the country-risk-rating agency ICR. Average of the months of April and October of the monthly index between 1982 and 1995. Scale from O to 10, with lower scores for less tradition for law and order.

Source: LLSV (1996, 1998).

What micro-economic impact these factors are likely to have on financial structures of firms? On one hand, it is possible to consider that strongly protected creditors are less risk averse and lend more easily. Creditor protections would thus lead to higher leverage capabilities for firms. Such an argument is in line with LLSV's reasoning at a macro-level. But, on the other hand, it can be suggested that firms could be more prone to choose other sources of finance if they consider that creditors benefit from

excessive protections. Such an alternative depends upon the bargaining power the firms can have. If they are strictly dependent upon the credit source, it is likely to find a positive impact of creditor rights on corporate leverage. If they were not, it would be more likely to find no impact. An inverse effect (id est. a negative impact) could be also possible when firms have bargaining power on their side. Corporate size is a proxy available to tackle the bargaining power. Indeed, as mentioned above, SMEs are often claimed to be dependent upon the financial system of their home country. By contrast, LEs may search for multiple sources of financing in geographical and financial terms and they are able to trade-off between these sources.

DATA DESCRIPTION

Data source

Corporate information stems from the Bach database managed by the European Commission (DG Economics and Finance)[1]. The BACH database contains aggregated information on thirteen countries including Japan and the United States; three size classes; twenty-three sectors or sub-sectors; time series of a maximum of 15 years; and ninety-five items, including assets, liabilities and the profit & loss account. All items are presented in structured form, i.e. as a percentage of balance sheet total or net turnover (Partsch and Savary, 1997).

Accounting harmonization is still incomplete at the international and even at the European level. The common layout for accounting harmonization is, however, based

[1] More information is available on http://europa.eu.int/comm/dg02/databases/bach_en.htm.

on Articles 10 and 23 of the 4th Council Directive with some adjustments for the presentation of the data. The existing time series have been recalculated on the basis of the new definitions wherever possible. Harmonization work is occasionally at the expense of the amount of information contained in BACH. Moreover harmonization work has been mainly concentrated on the European countries due to less detailed information on the American and Japanese data. The comparability of the data from the U.S.A. and Japan with the European data is therefore limited.

Twenty-three sectors or sub-sectors are included. Corporate data exist for the whole business industry (Energy and Water; Manufacturing industry; Building & Civil Engineering; Trade; Transports and communications; other services) but they are not always available in all the countries.

Three corporate size classes are in the BACH database, except the US where only two size classes are available: for European countries, a distinction is made between small companies with a turnover of less than 7 million EURO (ECU); medium-size companies with a turnover between 7 million EURO (ECU) and 40 million EURO (ECU); and large companies with turnover in excess of EURO (ECU) 40 million.

Data from 10 European countries were extracted from BACH: Austria, Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Portugal and Spain. Except Denmark, all these countries are included in the Euroland; only Ireland and Luxembourg being missing. Swedish data were not available when the research was undertaken. The cases provide information on a five-year period, from 1993 to 1997.

For each country, the companies are available aggregated in three size classes according to the thresholds defined above.

Only data on manufacturing industry were selected: the data for the other industries were too often missing to provide a sound basis for analysis. The most precise and available level of classification was preferred (3-digit level). We had the 10 following breakdowns: (1) In intermediate products, 'Extraction of metalliferous ores and preliminary processing of metal' (sector 211); 'Extraction of non-metalliferous ores and manufacture of non-metallic mineral products' (sector 212); 'Chemicals and man-made fibbers' (sector 213); (2) in Investment and consumer durable goods, 'Manufacture of metal articles, Mechanical and instrument engineering' (sector 221); 'Electrical and electronic equipment, including office and computing equipment' (sector 222); 'Manufacture of transport equipment' (sector 223); (3) in, 'Food, drink and tobacco' (sector 231); 'Textiles, leather and clothing' (sector232); 'Timber and paper manufacture, printing' (sector 233); 'Other manufacturing industries not elsewhere specified' (sector 234).

Basically, the structure of the sample is a panel and the unit of analysis observed during the period 1993 - 1997 is the following:

$$Firm_{j,k,l} = Country_j * Sector_k * Size_l$$

Here the unit of analysis looks like a "quasi-firm", which is the average behavior of the small/medium/large firms in manufacturing industry in Europe (EU10).

Sample structure

On a theoretical basis, the sample should gather 1500 cases (10 countries x 10 sectors x 3 sizes x 5 years). One information, however, is missing about medium-sized firms in Netherlands (sector 211) for 1997. Moreover 11 cases are missing on Portugal, mainly for reasons of confidentiality (the number of large enterprises in some sectors stay under the minimum required). In Finland, data are available only from 1995 on. 60 cases are thus missing too. Last, we decided to drop out the values under the first centile and above the ninety-ninth centile were left out for the four quantitative variables (presented after at the regression phase). Such a rule-of-thumb is frequently used to cancel main possible extreme values. At the end of the process, the size of the sample is 1271 cases (table 2).

Table 2

Number of cases in the sample.

Countries	Small companies	Medium companies	Large companies	Total
Austria	27	49	50	126
Belgium	48	49	44	141
Denmark	49	48	46	143
Finland	25	29	23	77
France	46	50	42	138
Germany	44	47	47	138
Italy	49	49	46	144
Netherlands	30	41	43	114
Portugal	44	44	28	116
Spain	49	46	39	134
Total	411	452	408	1271

The structure of the sample is presented as a percentage of total assets (table 3). Unfortunately both sectoral and size breakdowns are specific to the BACH database and it is almost impossible to compare the sample with other larger corporate databases (Eurostat, 1999). It appears, however, that countries such as Germany or Spain are under-represented and small countries such as Denmark or Belgium are over-represented. This situation is directly connected with the means available at national level to collect balance sheets (see appendix). The main sectors in the sample are 'Manufacture of metal articles, Mechanical and instrument engineering' (sector 221); 'Electrical and electronic equipment, including office and computing equipment' (sector 222); 'Manufacture of transport equipment' (sector 223); 'Food, drink and tobacco' (sector 231). Investment and consumer durable goods stand for 44% of the total sample. Non-durable consumption goods have a share of 31% and intermediary products are around 20%. If the total assets are split-off by size, the relative weight of large enterprises is obvious. With more than 75% of total assets, they play a leading role in manufacturing industry. Again, despite the fact that the sample structure cannot be directly compared with another source, it seems consistent with other descriptions of European business (Eurostat, 1999).

Table 3
Structure of the sample by country, sector and size (in % of total assets).

By country	%
Austria	2,81%
Belgium	5,92%
Denmark	2,87%
Finland	2,38%
France	16,78%
Germany	27,39%
Italy	24,54%
Netherlands	7,99%
Portugal	1,61%
Spain	7,71%
Total	100,00%

By size	%
Small companies	6,30%
Medium companies	17,67%
Large companies	76,03%
Total	100,00%

By sector	%
211	5,17%
212	4,78%
213	15,14%
221	15,64%
222	14,04%
223	13,96%
231	13,98%
232	4,96%
233	7,44%
234	4,90%
Total	100,00%

Descriptive results

In this descriptive section, the figures on legal systems and financial structures are examined country by country. Six countries have a French legal origin, two other a German origin and two other a Scandinavian origin (table 4). Unfortunately, no country from the Common Law tradition is available in the sample. Nevertheless, LLSV (1997) pointed out that French countries are very different from German and Scandinavian countries as regards creditor rights. Such an opposition will thus be a matter of special attention in the empirical test.

In German countries, the proxies exhibit very close figures, diverging only on the threshold for legal reserves. In Scandinavian countries, the main difference is in the value of the creditor index with a high gap of 2 % points. Of course, the variance is higher for the six French countries. France has the lowest rating on the creditor right index but none of the French countries goes beyond the rating “2”. The figures are more contrasted on the two other items. It is worthwhile to note that the rating for the rule of law index varies on a geographical border: French countries in the northern part of Europe reach the top value of “10”. Other countries in the Southern part of Europe are rated with a lower value (from 7.80 to 8.98). This gap of 1 or 2 points measured on a scale of 10 is sizeable. The situation is contrasted about the legal reserves. Basically, one group of countries sets up thresholds up to 10 % (Belgium, Finland, France, Germany and Netherlands) ; another group requires 20 % or more (Austria, Denmark, Italy, Portugal, Spain). By contrast with the two items described above, the requirement of legal reserve does not seem to be linked with the legal origin of the 10 European countries in the sample.

Table 4

Legal systems by country

Countries	CREDIT	RULAW	LEGRES (%)	Legal origin
Austria	3	10	0.25	German
Belgium	2	10	0.10	French
Denmark	3	10	0.25	Scandinavian
Finland	1	10	0.10	Scandinavian
France	0	8.98	0.10	French
Germany	3	10	0.10	German
Italy	2	8.33	0.20	French
Netherlands	2	10	0.00	French
Portugal	1	8.68	0.20	French
Spain	2	7.80	0.20	French

Source: LLSV (1998)

The figures describing the corporate structures in the ten European countries are presented through a cross tabulation table country by size (table 5). As much research in this field (Rajan and Zingales, 1995; Kremp and Stöss, 2001), a firm's financial structure is looked upon through the angle of indebtedness. The concept of debt used here is the overall debt ratio, which reflects the proportion of short and long term debts in the balance sheet. All debt is taken into consideration, i.e. not only bank debt, which accounts for the bulk of total debt, but also bonds issue, commercial, tax and social security debts, any intra-group debt, etc.

Table 5 gives descriptive averages summarizing the data by country and size. During the period 1993-1997, the debt generally remains the first source of financing for the European firms in the manufacturing industry. The figures show a 15 % gap between the smallest and the largest companies. The size effect exhibits a very linear pattern with a constant decrease from small to medium and large companies. This size gap seems widespread throughout European countries. Despite presenting different patterns, Spain, Italy, France and Finland, however, have narrower gaps (around 5 %).

The Italian companies are the most dependant on credit with more than 60% of total liabilities. Five countries (Portugal, Spain, Belgium, Denmark and France) are concentrated between 53 % and 58 %, i.e. 5 points. But, in Denmark and Portugal, the capital structure substantially differs between the smallest and the largest companies in the sample. By contrast, in Belgium, Spain and France, the gap never exceeds 5 %. Austria, Finland, Germany and the Netherlands have the lowest levels of leverage (from 52 % - Austria – to 37 % - Germany). But a strong heterogeneity is obvious when the figures are observed size by size. Small companies in Austria and Germany are the most indebted firms in Europe. It is widely claimed that such a situation stems from the specific regulation on provisions existing in Germanic countries (Delbreil and al., 1997). By contrast, the Netherlands and Finland exhibit much more homogeneous situation with relatively low levels of leverage on average and no more than 8 % between the smaller and the larger companies

Table 5

Aggregated corporate leverages in Europe

(Variable DEBT, in % of total liabilities).

Countries	Small companies	Medium companies	Large companies	Total
Austria	75,15	57,44	49,42	**52,39**
Belgium	58,51	59,00	53,88	**55,51**
Denmark	66,30	60,40	50,15	**55,81**
Finland	49,22	43,71	45,04	**45,12**
France	61,99	59,67	56,31	**57,29**
Germany	73,10	59,30	34,54	**37,45**
Italy	66,96	67,27	60,29	**62,84**
Netherlands	54,18	49,81	46,86	**47,37**
Portugal	63,58	53,16	46,03	**53,54**
Spain	57,32	54,38	54,89	**54,93**
Total	**63,45**	**61,59**	**48,31**	**51,61**

Each cell gathers all the cases across the ten sectors and the five years. The averages in this table are weighted by the value of each case in total assets (in ECUs).

In this descriptive part, we run a comparison of means (by analysis of variance) in order to check whether the levels of corporate indebtedness are influenced by the legal origin of countries (table 6).

Table 6

Comparison of individual corporate leverages by legal system and by size

(Variable DEBT, in % of total liabilities).

	French countries	Scandinavian countries	German Countries

Small companies	60.51^{G}	60.33^{G}	73.46^{FS}
Medium companies	57.69^{S}	53.26^{FG}	57.94^{S}
Large companies	$54.35S^{G}$	46.99^{FG}	43.10^{FS}
Total	57.61^{S}	55.30^{FG}	56.66^{S}

Significant differences between groups (at a 5% threshold) indicated in superscript;

"F" for French countries, "S" for Scandinavian countries, "G" for German countries.

These first results show significant differences in mean comparisons and contrasted situations. On the overall sample, the average debts across the three legal systems are very close. This could be rather unexpected because the creditors are said less protected in the French legal framework and thus more reluctant to lend.

But, in table 6, a size effect is obvious. The most striking opposition is between the French and the German origins. Small companies are much less indebted and large companies are much more indebted in French countries than in German countries. In French countries, the low level of protection for creditors seems to reduce the access of credit as regards the smaller companies. Here it is possible to say that a legal framework in favor of investors backs up the development of debt financing. But, when firms – like LEs – can enjoy a real bargaining power, the picture changes dramatically. For this size category, it is as if the firms would prefer to by-pass the creditors. LEs in German countries are the lowest indebted companies. By contrast, in French countries, LEs are more involved in credit (from 7 to 11 percentage points above). In this case, the lack of constraints seems to foster the development of the credit relationship: on one side, the firm is not constrained by this financial contract; on the other side, the creditors are not really reluctant to lend money to these companies as they involve a very low level of bankruptcy. As regards medium-sized

companies, the differences in are comparatively narrower than for the two other size classes. This supports the idea of a size effect with a switch in the visible impact from the smaller to the larger companies. By contrast, the Scandinavian is "idiosyncratically in the middle".

REGRESSION RESULTS AND COMMENTS

On the basis of the descriptive results, the impact of the legal variables on the debt level is tested through a set of regressions not only on the whole sample but also by size class. It is strongly expected that the coefficients could substantially differ alongside with the size.

A number of control variables is introduced into the regression. The choice is based upon previous works on corporate financial structures and upon availability (Rajan and Zingales, 1995; Kremp and Stöss, 2001): A first proxy – gathering tangible fixed assets and stocks in the balance sheet – stands for firm collaterals (COLL). Stocks and tangible fixed assets are often considered as an asset easy to resale in case of financial distress. In case of bankruptcy, creditors with a right on these assets can find buyers and be repaid with a low search cost. Moreover, they can be priced by reference to market prices. The higher the level of collaterals, the higher a firm's leverage. A second proxy provides an approximation of the cost of financing by debt (FINCH). An enterprise's financial charges essentially constitute interest paid for loans as a percentage of turnover. The concept of financial charges used here (for reasons inherent in the technical problems of international comparability) is broader than the traditional concept of "interest paid". In certain countries it includes negative

foreign-exchange items (such items represent varying proportions of financial charges depending on the country in question and range from 5% to 15%). Financial charges also include sums repaid to the group and to associated enterprises. This ratio gives a crude but comparable estimate across countries of the “price” of debt for companies. The higher the cost of debt financing, the lower a firm’s leverage. A third variable gives an assessment of the firm capability of self-financing. It is based upon the return on asset (ROA). An enterprise return on assets corresponds to the final profit of the year as a percentage of turnover. The higher the return on assets, the lower a firm’s leverage. It can be considered as a proxy for the profitability of investments by the companies and an important source to generate cash flow. In order to take into account the effect of size on leverage which is generally identified (Coeurderoy, 2001), the turnover is introduced in the regression (measured by its logarithm). Sector (SECT 211-234) and year (YEAR94-97) variables are also introduced to tackle specific business needs and possible business cycles effects.

In order to keep into account a mre microeconomic perspective, each is considered individually – as a “quasi-firm” -, whatever the size of the companies. However, considering (and checking) that such a cross section – cross country sample is exposed to heteroscedasticity problems, we test coefficients with asymptotic standard errors in order to obtain heteroscedastic – consistent evaluations.

It is decided to test separately but systematically regressions with dummies indicating the legal origin on one hand; and the three items on the creditor rights, the rule of law and the legal reserves on the other hand. Because of strong colinearities among these two sets of variables, it is not really possible to gather them in a single regression. The

four tables (table 7 to 10) exhibit the three same regression outputs: (1) a regression run with only the control variables; (2) a regression run with the control variables plus the dummies of legal origin; (3) a regression run with the control variables plus the three legal items.

Even if it is not directly of interest in this paper, some comments about the control variables deserve attention as they are closely related with the credit relationship. At first, a strong influence of economic and financial variables on capital structure is noticeable. These results are consistent with previous empirical findings (Rajan and Zingales, 1995; Kremp and Stöss, 2001). The existence of collaterals (COLL variable) increases the firm capabilities of lending. These assets stand for credible commitments in the credit relationship. But such reasoning appears mainly relevant for the smaller companies. The coefficients are not significant in the case of medium nor large companies. As suggested previously, numerous reasons may be put forward: large companies have a bigger bargaining power with their creditors; they often have in-house better skills in financial engineering; and their risk of bankruptcy is lower. As regards the financial variables (CHFI and ROA), the coefficients have the expected negative signs too. The higher the cost of financing, the lower the indebtedness level. But there is a gap between the coefficients of LEs and SMEs. In absolute terms, LEs have higher coefficients. It is another evidence in favor of LEs capabilities to trade-off among alternative sources of financing. By comparison, European SMEs are more in a position of hostage in terms of external finance. The coefficients of the ROA variable are relatively constant across sizes. This tends to show a constant managerial behavior in terms of corporate finance choices.

If we move now towards our core issue, we find a very strong impact of legal variables on firm capital structure. Looking at the changes in explained variance (R^2), we find that, for the whole sample, regression (2) gains + 1 % and regression (3) + 4 % only ; but that, for the small companies, regression (2) gains + 16 % and regression (3) + 10 %; that, for the medium-sized companies, regression (2) gains 0.5 % only and regression (3) + 10 %; and that, for the larger companies, regression (2) gains + 17 % and regression (3) + 6 %. These gains are often sizeable as we keep in mind the limited variance of these legal proxies. It gives evidence that the legal systems introduce a deep segmentation into national corporate finance patterns. This conclusion supports LLSV's intuitions at a micro-level. In particular, the dummy for the legal origin (FRENCH ORIGIN) has often a 10% share in the explained variance. Despite economic and financial convergence in Europe at a macro-level, huge discrepancies are pending at the micro-level of firms because legal systems impose different rules of the game in business.

The reading of the coefficients by size class is an incentive to go further in the analysis. Basically, there is one story for each size class. In French origin countries, the smaller companies have less access to credit financing than in Scandinavian or Germanic countries. The results on the small firms are really in line with LLSV's arguments. They also give evidence to support the idea that the creditor rights improve the development of this source of external finance through a better credibility of the contractual credit relationship. Legal reserve requirements help also the credit relationship to strive. Similarly, the smaller companies benefit from a more efficient rule of law.

The medium-sized enterprises are affected by the legal environment in the same way as the small companies but at a lower extent. As regards the second regression, the legal origin does not seem to matter, apart from the significant but limited opposition between French and German origins. The legal reserve requirement strongly increases the levels of corporate debt. Moreover, like the smaller companies, their capability of lending rises when the creditor rights are high. But the two other variables on the French origin and on the rule of law have not any significant impact. Yet, the relevance of the size class is questionable, especially when considering the opposition between the smaller and the larger companies. We would need a more precise size breakdown to know whether there is or not a specificity for medium-sized firms.

The coefficients of the larger enterprises are in a total opposition with those of the smaller companies, apart from the LEGRES proxy. As regards LEs, the higher the creditor rights, the lower the debt ratio in capital structures. When the rule of law has a high rating, the debt share is lower in the capital structure too. These findings are more in favor of the alternative hypothesis to LLSV's argument. They support the idea that LEs can benefit from a bargaining power to trade-off between equity and credit sources of financing. In this case, they prefer to by-pass the constraints imposed on credit regulation by the legal system.

Considering these results, one question has to be addressed now: how can we explain that the coefficients of LEGRES are constantly positive and do not vary by size class as the others? Indeed all the legal proxies are oriented in the same way (the higher the value, the higher the creditor rights). Consequently, the difference in signs can jeopardize our reasoning discriminating among size classes. A close attention to these

variables, however, let see a genuine difference between LEGRES and the other variables. The legal reserve requirement is a general rule imposed by the legislator and it applies to all corporations, whatever their development stage, their business or their size. Such a rule may be considered as a barrier to entry for new entrepreneurs but is neutral for incumbents. In the credit relationship, this rule is set up during the *ex ante* phase of negotiation, when the lender checks the financial health of the borrower. Moreover, this rule (and its checking case by case) is unambiguously on the creditor-side as it is a public information. There is thus no reason to observe changes in the coefficient of LEGRES: the higher the legal reserves, the more secured the creditors and the higher the incentives to lend. But we can point out that the impact of legal reserve requirement seems to follow a U curve (with a coefficient around 0.20 for the smaller and the larger companies and a cofficient 10% higher for the medium-sized ones). In both these cases, the legal reserves are less influential but for opposite reasons: in the case of smaller companies, the effect of the legal requirement is mitigated by the higher business risk. In the case of the larger companies, the legal requirement matters less as the companies are unlikely to be insolvent.

By contrast, the other legal proxies explicitly refer to *ex post* phases of the contractual relationship – when (if) the reorganization issue comes up. In general, this event is unlikely to be observed during the *ex ante* phase of negotiation or, elsewhere, the contract would be unlikely to be signed up (Povel 1999). Consequently, the creditors can not rule out a risk of opportunism by the entrepreneur, a risk limited within a legal system claiming and enforcing their rights. This is why the coefficient signs are positive for SMEs, as they have no substantial bargaining power. But such a risk is very limited for LEs and the logic may be reversed: in presence of *ex post* creditor

safeguards, entrepreneurs in LEs are less prone to borrow and more prone to trade-off with the alternative sources of financing that are available for them. Negative signs give significant evidence of this strategy.

To conclude, going back to our seed question, “Are capital structures of SMEs really much more affected by the legal system of their home country than LEs?” we would like to provide a two-stage answer. First, both of them are impacted by the legal system. But, second, there are not affected in the same way. Facing risk aversion from lenders, the smaller companies benefit from a legal framework designed to support creditor rights. But, the larger companies prefer to lower their debt ratio in favor of other sources of financing as they have more trade-off opportunities.

Table 6

Explanatory variables of leverage on the whole sample

Variables	(1)		(2)		(3)	
	Coeff.	Std Err.	Coeff.	Std Err.	Coeff.	Std Err.
INTERCEPT	67.304***	4.539	59.722***	0.702	70.016***	0.266
FRENCH ORIGIN	-	-	2.986***	4.827		
SCAND ORIGIN	-	-	1.527	0.120		
CREDIT	-	-		-	-0.247	5.445
LEGRES	-	-		-	29.757***	3.910
RULAW		-		-	0.049	0.108
COLL	0.210***	0.106	0.277***	0.906	0.158***	0.354
CHFI	-1.348***	1.141	-1.368***	1.155	-1.618***	1.071
ROA	-1.529***	1.141	-1.466***	1.147	-1.428***	1.069
TURNl(g)	-0.849***	1.148	-0.675**	1.139	-0.985***	1.068
SECT212	0.914	1.132	0.691	1.115	0.494	1.057
SECT213	1.806	1.222	1.695	1.199	1.285	1.157
SECT221	6.638***	1.206	6.579***	1.206	6.111***	1.125
SECT222	4.776***	1.197	4.994***	1.183	3.896***	1.115
SECT223	4.587***	1.174	4.555***	1.177	4.319***	1.118
SECT231	4.388***	1.142	3.952**	1.130	4.109***	1.075
SECT232	4.134***	0.125	3.890***	0.119	4.017***	0.122
SECT233	6.617***	0.035	6.435***	0.038	6.201***	0.040
SECT234	6.701***	0.222	6.422***	0.218	6.549***	0.212
YEAR94	0.759	0.711	0.686	0.704	0.122	0.706
YEAR95	0.404	0.722	0.347	0.715	0.213	0.702
YEAR96	-2.298**	0.775	-2.411**	0.764	-2.771***	0.756
YEAR97	-1.838*	0.794	-2.005*	0.782	-2.646***	0.786
R^2 (%)	39.80		41.02		44.13	

OLS regressions with heteroscedasticity-consistent coefficients
1271 cases. *: < 5%; ** < 1%; *** < 1‰

Table 7

Explanatory variables of leverage on Small Companies

Variables	(1)		(2)		(3)	
	Coeff.	Std Err.	Coeff.	Std Err.	Coeff.	Std Err.
INTERCEPT	22.700*	9.459	32.679***	0.679	23.914**	0.379
FRENCH ORIGIN	-	-	-11.266***	8.608	-	-
SCAND ORIGIN	-	-	-7.033***	0.202	-	-
CREDIT	-	-	-	-	2.363***	7.886
LEGRES	-	-	-	-	25.003***	5.428
RULAW	-	-	-	-	1.269*	0.163
COLL	0.530***	0.170	0.269***	1.206	0.281***	0.513
CHFI	-0.930***	2.249	-0.367	1.869	-1.146***	1.914
ROA	-1.101***	2.150	-1.293***	1.884	-1.287***	1.816
TURNl(g)	1.663**	2.473	2.298***	2.067	1.025*	2.179
SECT212	-4.824*	2.052	-5.597**	1.857	-2.661	1.768
SECT213	-0.244	2.214	-2.259	1.973	0.162	1.978
SECT221	-1.769	2.477	-4.434*	1.979	0.075	2.134
SECT222	2.237	2.419	0.194	1.963	2.347	2.123
SECT223	0.885	2.283	0.548	1.955	1.936	2.020
SECT231	-3.715	2.303	-3.700	1.970	-0.790	2.021
SECT232	-2.469	0.250	-3.987*	0.248	0.008	0.225
SECT233	1.665	0.048	-0.302	0.050	3.795*	0.061
SECT234	-0.884	0.565	-2.189	0.491	1.865	0.511
YEAR94	0.855	0.974	1.759*	0.791	0.687	0.965
YEAR95	-0.092	0.997	0.945	0.848	0.383	0.960
YEAR96	-1.815	1.100	0.344	0.909	-1.342	1.079
YEAR97	-2.397*	1.101	0.194	0.955	-2.183	1.094
R^2 (%)	48.23		64.88		58.83	

OLS regressions with heteroscedasticity-consistent coefficients
411 cases. *: < 5%; ** < 1%; *** < 1‰

Table 8

Explanatory variables of leverage on Medium Companies

Variables	(1)		(2)		(3)	
	Coeff.	Std Err.	Coeff.	Std Err.	Coeff.	Std Err.
INTERCEPT	18.420**	6.604	13.904*	0.643	21.253**	0.271
FRENCH ORIGIN	-	-	1.521*	7.063	-	
SCAND ORIGIN	-	-	0.924	0.184		
CREDIT	-	-			0.594*	7.843
LEGRES	-	-			32.336***	3.815
RULAW					0.836*	0.161
COLL	0.088	0.171	0.140*	0.959	-0.025	0.390
CHFI	-0.703***	1.509	-0.777***	1.535	-0.962***	1.351
ROA	-1.126***	1.517	-1.149***	1.536	-1.079***	1.414
TURNl(g)	3.082***	1.442	3.174***	1.414	2.471***	1.283
SECT212	-6.489***	1.544	-6.412***	1.525	-6.429***	1.411
SECT213	-6.800***	1.263	-6.690***	1.249	-6.778***	1.228
SECT221	-5.991***	1.451	-5.936***	1.427	-5.658***	1.297
SECT222	-1.757	1.327	-1.516	1.306	-2.278	1.243
SECT223	1.025	1.420	1.016	1.415	0.854	1.275
SECT231	-4.932***	1.443	-5.143***	1.442	-4.096**	1.353
SECT232	-2.202	0.149	-2.327	0.154	-1.373	0.140
SECT233	-3.301*	0.051	-3.248*	0.060	-3.013*	0.053
SECT234	-1.303	0.317	-1.256	0.312	-0.965	0.308
YEAR94	1.159	0.657	1.159	0.662	0.505	0.575
YEAR95	0.125	0.705	0.120	0.705	-0.045	0.615
YEAR96	-1.290	0.748	-1.311	0.747	-1.852**	0.654
YEAR97	-0.788	0.810	-0.809	0.812	-1.577*	0.730
R^2 (%)	55.67		56.17		65.28	

OLS regressions with heteroscedasticity-consistent coefficients
458 cases. *: < 5%; ** < 1%; *** < 1‰

Table 9

Explanatory variables of leverage on Large Companies

Variables	(1)		(2)		(3)	
	Coeff.	Std Err.	Coeff.	Std Err.	Coeff.	Std Err.
INTERCEPT	72.596***	9.514	43.219***	0.858	71.628***	0.525
FRENCH ORIGIN	-	-	10.991***	8.028	-	
SCAND ORIGIN	-	-	7.475***	0.139		
CREDIT	-	-			-2.505***	14.185
LEGRES	-	-			22.073**	6.793
RULAW					-0.146	0.146
COLL	-0.108	0.138	0.091	1.243	-0.062	0.844
CHFI	-1.654***	1.627	-1.459***	1.633	-1.754***	1.666
ROA	-1.214***	1.701	-1.068***	1.356	-1.050***	1.493
TURNl(g)	-0.340	1.816	0.376	1.593	-0.096	1.710
SECT212	-0.643	1.749	0.171	1.521	-1.057	1.655
SECT213	0.904	2.393	-0.040	1.878	-0.438	2.188
SECT221	6.073***	1.705	7.719***	1.459	6.437***	1.537
SECT222	1.550	1.947	3.019*	1.825	1.037	1.778
SECT223	6.295**	1.618	6.388***	1.874	5.885**	1.759
SECT231	3.867*	1.770	3.433*	1.540	2.908	1.654
SECT232	1.869	0.194	2.869	0.157	1.882	0.174
SECT233	4.553**	0.061	4.867***	0.061	3.926*	0.070
SECT234	6.927***	0.492	6.938***	0.402	6.545***	0.473
YEAR94	-0.793	1.330	-0.849	1.063	-1.383	1.258
YEAR95	-0.189	1.329	-0.231	1.055	-0.819	1.237
YEAR96	-3.565**	1.352	-3.476**	1.140	-4.336***	1.247
YEAR97	-2.701	1.442	-2.560*	1.207	-3.605***	1.337
R^2 (%)	38.97		56.44		45.43	

OLS regressions with heteroscedasticity-consistent coefficients
408 cases. *: < 5%; ** < 1%; *** < 1‰

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Appendix

Description of sample sources.

Countries	Approximate coverage	Comments
Austria	54 % (as a percentage of total net turnover reported by the Austrian Central Statistical Office)	To check the solvency of non-financial enterprises involved in the collaterization of monetary policy operations, the OeNB asks for annual accounts. Most of the financial statements are drawn up to comply with tax requirements. Due to the special structure of the source material the OeNB's sample is not a statistical sample and there is a bias in the database. Commercial banks usually present collateral from companies that they expect will satisfy the one's solvency requirements. Sound enterprises are thus over-represented in the sample.
Belgium	99 % (of cover in GDP of non financial companies)	The National Bank of Belgium is authorized to collect and to diffuse the whole of annual accounts deposited in Belgium. She has to put this information at the disposal of third parties (on microfilm, magnetic tape or optical disc) and to draw up sectoral statistics based on standardized annual accounts.
Denmark	100% (of total number of companies)	Data have been collected from all Danish manufacturing enterprises with 20 or more persons engaged. The survey is mandatory, so the response rate is close to 100 per cent.
Finland	92 % (of total turnover)	The statistics were sample-based until 1995. All enterprises with 100 or more employees were included in the survey, whereas a sample was selected from smaller enterprises. The data of accepted responses were raised to the branch level using proportional estimation. Since 1995 the financial statement survey is directed to larger enterprises, and for smaller business firms, administrative registers complemented with imputations are used. A threshold of 10 or 20 employees is used in the direct data collection.
France	60 % (of total employees)	Data have been collected by the Bank of France on a voluntary basis. It is not a statistical sample but almost all the large enterprises are included.
Germany	52 % (of total turn-over)	The sample is restricted on annual accounts available for west German incorporated enterprises. Due account must be taken of the fact that, because large enterprise carry great weight in the source material and small and medium sized enterprises are considerably underrepresented, the German BACH data predominantly reflect the situation of large west German enterprises and must by no means be regarded as representative for the economy as a whole.
Italy	55 % (of total added value)	The sample is collected through commercial banks. It is not a statistical sample but almost all the large enterprises are included.
Netherlands	55 % (of total added value)	The data on the balance sheet and the profit and loss account are consolidated data, describing the group as one economic unit.
Portugal	54 % (of total turn-over)	Data have been collected by the Bank of Portugal on a voluntary basis. It is not a statistical sample but almost all the large enterprises are included.
Spain	36 % (of total turnover)	The Central Balance Sheet Data Office of the Bank of Spain collects both the annual accounts and the complementary information from a sample of enterprises that have voluntarily contributed.

Source: EC (2000)