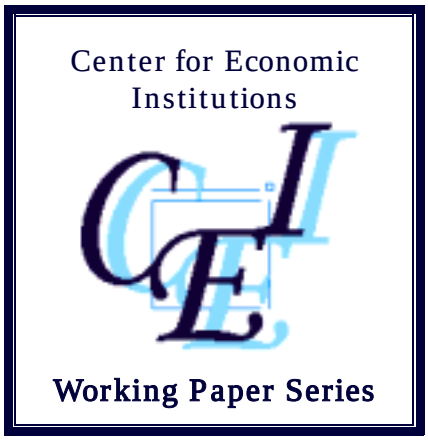
Center for Economic Institutions

Working Paper Series

CEI Working Paper Series, No. 2002-17

Bankruptcy around the World: Explanations of its Relative Use

Stijn Claessens
Leora F. Klapper



Institute of Economic Research
Hitotsubashi University
2-1 Naka, Kunitachi, Tokyo, 186-8603 JAPAN
Tel: +81-42-580-8405
Fax: +81-42-580-8333
e-mail: cei-info@ier.hit-u.ac.jp

Bankruptcy around the World: Explanations of its Relative Use

Stijn Claessens
Finance Group
University of Amsterdam
Roetersstraat 11, 1018 WB
Amsterdam, The Netherlands
(31)-(20)-525-6020
stijn@fee.uva.nl

Leora F. Klapper
Development Research Group
The World Bank
1818 H Street, NW
Washington, DC 20433
(202) 473-8738
lklapper@worldbank.org

This Version: November 6, 2002

The authors would like to thank Sandeep Dahiya, Asli Demirguc-Kunt, Simeon Djankov, Fritz Foley, Roumeen Islam, Papillon Benoit Mario, David Skeel, Do Quy-Toan, participants in seminars at the London Business School and K.U. Leuven, our discussant, Mariassunta Giannetti, and our presenter, Thierry Foucault, and other participants in the conference *Understanding Financial Architecture: Financial Structure and Bankruptcy*, Oxford, 13/14 September 2002 for very helpful comments, and Jessica Lieberman and Victor Sulla for excellent research assistance. The opinions expressed do not necessarily represent the views of the World Bank, its Executive Directors, or the countries they represent.

Abstract

The recent literature on law and finance has drawn attention to the importance of creditor rights in influencing the development of financial systems and in affecting firm corporate governance and financing patterns. Recent financial crises have also highlighted the importance of insolvency systems – a key element of creditor rights – to prevent and resolve corporate sector financial distress. The literature and crises have highlighted the role that creditor rights play in not only affecting the efficiency of ex-post resolution of distressed corporations, but also in influencing ex-ante risk-taking incentives and an economy's degree of entrepreneurship more generally. Yet, little is known on how much formal insolvency systems are actually being used, how the use of the courts to resolve financial distress relates to creditor rights, and whether any specific creditor rights matter more. This paper starts with documenting how often bankruptcy is used in a panel of 35 countries. It next investigates the relation between specific design features of insolvency regimes and the use of bankruptcy, considering also the quality of countries' judicial systems. We find, controlling for overall development and macroeconomic shocks, that bankruptcies are higher in common-law countries and in market-oriented financial systems. Stronger creditor rights are generally associated with more use of bankruptcy, except for the presence of a "stay on assets" that is associated with fewer use of bankruptcy. Greater judicial efficiency is associated with more use of bankruptcy, but there is some substitution between stronger creditor rights and greater judicial efficiency. These findings suggest that the relationship between specific creditor rights features and the use of bankruptcy systems is more complex than perhaps thought. It may also help clarify the relationships between creditor rights, the development of financial systems, corporate ownership, and financing patterns.

1. Introduction

The growing literature on law and finance, starting with the work by La Porta, Lopez de Silanes, Shleifer, and Vishny (1997, 1998), has drawn attention to the importance of the strength of equity and creditor rights in influencing the development of financial systems and in affecting firm corporate governance and financing patterns. This literature finds that greater investor protection encourages the development of capital markets and that countries that better protect creditors have more developed credit markets. Although various aspect of the strength of equity rights have been extensively studied, less attention has been devoted the features and impact of creditor rights. Important aspects of creditor rights are the specific features of a country's insolvency regime and its enforcement. Recent financial crises have further highlighted the importance of well-functioning insolvency systems in preventing and resolving corporate sector financial distress. More generally, there is increased interest globally in the design of insolvency systems from a point of resource allocation, efficiency, and stability as well as equality and fairness (Stiglitz 2001 and Hart 2000 review).

An insolvency regime tries to balance several objectives, including protecting the rights of creditors and other stakeholders – essential to the mobilization of capital for investment and working capital and other resources – and obviating the premature liquidation of viable firms. A good insolvency regime should also prevent managers and shareholders from taking imprudent loans and lenders from giving loans with a high probability of default. At the same time, the insolvency regime should provide for a degree of entrepreneurship in the economy more generally. An insolvency regime should also deliver an ex-post efficient outcome, in the sense that the highest total value is

obtained for the distressed firm with the least direct costs and loss in going concern value.

To achieve these objectives, insolvency regimes include a number of features. These include whether the law provides for an automatic trigger when a company needs to file for bankruptcy, who can file for reorganization or liquidation, the weight given to the debtor, the creditors (bank loans, trade financing), the company's management, and the other stakeholders in preparing reorganization proposals, the ability of management to stay during the reorganization, and whether an automatic stay of assets (moratorium) exists. The working of countries' judicial systems further complicates balancing these incentives. In addition to adequate legal rights, there is a need for an efficient judicial system to enforce these rights, or at least to serve as a credible threat.

The analytical literature and recent financial crises have highlighted the complex role of creditor. As the structure of economic production and the values of stakeholders are continuously changing – often in response to crises – many countries are currently reevaluating the features of their creditor rights regimes and how their insolvency systems deal with financially distressed firms. This has proven to be a complicated area in many countries, with discussions on reform taking considerable time. Reforms may have been protracted in part because of the important implications of any changes for the distribution of wealth and control in an economy, raising in turn complex political economy issues. Reforms may have also been hampered by the lack of empirical evidence across countries on the effects of different bankruptcy designs.

While more data are being collected on differences in bankruptcy regimes across countries,[1] to date little is known on the effects of specific creditor right features and their interaction with the judicial system and other country characteristics. The cross-country empirical evidence has largely been limited to the general effects of creditor rights. Even here the evidence has been mixed, with some finding only limited or no significance of the aggregate strength of creditor rights on financial development. Furthermore, the precise channels through which a country's institutional inheritance affects its financial development and what aspects of legal systems are most important for firm financing are still being investigated.[2]

One indirect measure that may help shed light on these issues is the actual use of bankruptcy as a means to resolve financial distress and the relationship between actual use and a country's institutional features, including its creditor rights, legal heritage and judicial system. To date, however, it is not known how often bankruptcy is actually being used in countries around the world. Neither is it known whether its usage varies by country characteristics like differences in legal systems and insolvency standards, or by differences in the development of financial and capital markets and general macroeconomic conditions.

[1] The World Bank, Asian Development Bank, and Inter-American Development Bank have started to document the detailed features of bankruptcy systems in many countries. The World Bank has also undertaken a review of desirable principles and guidelines for bankruptcy systems. Furthermore, data are being collected on the actual workings of bankruptcy regimes for a large number of countries.

The purpose of this paper is to explore the relative importance of country characteristics and the effect of different types of creditor rights that can help explain the relative use of bankruptcy. For this, we collect from various government and private sources a unique dataset of the number of commercial bankruptcy filings in 35 countries. Almost all countries in our sample have laws protecting secured creditor rights and have bankruptcy laws permitting both liquidation and restructuring of distressed firms. There is considerable variation, however, in how frequently these laws are resorted to through formal bankruptcy filings. The data on actual bankruptcies allows us to investigate which legal design features and what macro, financial, and other country characteristics affect the likelihood that creditors use formal bankruptcy procedures as a means of resolving corporate financial distress. To our knowledge, this paper is the first attempt to document the actual usage of bankruptcy and to try to identify empirically the factors affecting the use of bankruptcy across countries.

We find, correcting for overall financial development and macroeconomic shocks, that bankruptcies are higher in common-law countries and in market-oriented financial systems, suggesting more efficient judicial systems or more risk-taking in common-law countries. We find that greater judicial efficiency is associated with more use of bankruptcy, but that the combination of stronger creditor rights – both aggregated and evaluated separately by specific features – and greater judicial efficiency leads to less

[2] Much research is being conducted, for example, on what aspects of a Common (Civil) Law heritage help explain that such countries have more (less) developed equity and financial markets. More robust tests and indirect measures are being used to explore the channels through which countries' legal and institutional "structure" matter (see further Acemoglu, Johnson and Robinson, 2001, Beck, Levine and Loayza , 2000, Berglof and Von Thadden, 1999, Coffee, 2000, La Porta et al., 2002, Rajan and Zingales, 1999 and 2002, and Stulz and Williamson, 2001).

use of bankruptcy. This suggests that stronger creditor rights and greater judicial efficiency are to some extent substitutes. Interestingly, we find that the presence of a "stay on assets", that is, the inability of individual creditors to seize assets without going to court, leads to fewer bankruptcies independently of the efficiency of the judicial system. These findings suggest that there are important ex-ante incentive effects of insolvency systems, including encouraging less risky behavior and more out-of-court settlements. But our findings also suggest that efficient legal mechanisms themselves may help corporations achieve speedy resolutions of financial distress. In turn, these finding may shed light on the debate of what are the precise channels through which a country's institutional structure affects its financial and general development.

2. Previous Literature and Hypotheses

The central role played by law and regulatory institutions in the development of financial markets in general and in corporate finance in particular has received considerable attention in recent years. La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998) examine cross-country differences in the quality of laws, regulations, and enforcement, including creditor rights. They document considerable variation in the protection offered to creditors and minority shareholders across countries. They also find a significant association between the legal origins of a country and the quality of investor protection. In particular, their findings show that common law countries (Anglo-Saxon) generally provide more investor protection whereas civil law origin (French, German, and Scandinavian) countries provide less investor protection.

Importantly, the literature on law and finance has drawn attention to the importance of equity and creditor rights in influencing the development of financial systems and in affecting firm corporate governance, ownership, and financing patterns. A number of papers have reported significant relationships between the legal framework of a country and its financial development and economic growth and between investor protection and legal origin and various corporate governance issues, such as firm dividend payout policies, firm valuation, and corporate ownership structures.[3]

To investigate these relationships in the case of creditor rights, La Porta et al. (1998) created an index of CREDITOR RIGHTS consisting of the summation of four dummy variables, with four the highest possible score. The dummy variables they report are: RESTRICTIVE REORGANIZATION, equal to 1 if the timetable for rendering a judgment is less than 90 days, and 0 otherwise; MANAGEMENT DOES NOT STAY (IN REORGANIZATION), equal to 1 if incumbent management does not stay during a restructuring or bankruptcy, and 0 otherwise; NO AUTOMATIC STAY ON STAY, equal to 1 if there is no automatic stay on assets (i.e., no moratorium on payments), and 0 otherwise; SECURED CREDITORS PAID FIRST, equal to 1 if secured creditors have the highest priority in payment, and 0 otherwise. La Porta et al. (1997) reports a positive relationship between the ratio of domestic debt to GDP and this aggregate creditor right index, although the creditor rights variable has only a 10% significance. Controlling for the country's legal origin (Anglo-Saxon, French, Germanic, and Scandinavian) and the

[3]See Beck, Levine and Loayza, 2000, La Porta et al., 1997 and 2002, Rajan and Zingales, 1995 and 1998, La Porta, Lopez-de-Silanes, and Shleifer, 1999, and Demirgüç-Kunt and Maksimovic,1998.

existence of judicial efficiency in the country, the significance of the creditor rights variable actually disappears.

Neither La Porta et al. (1997) nor the other papers on law and finance investigated the effects of each specific sub-index of the Creditor Rights index on the development of the credit markets. We may expect, however, that there are considerable differences between the effects of each specific creditor rights on firm and creditor behavior. A stipulation in the insolvency law that provides creditors with the right of no automatic stay on assets, i.e., individual creditors are allowed to seize assets when a firm is in a bankruptcy procedure, provides creditors with some bargaining power that may allow them to more easily negotiate debt restructuring out of court as going into bankruptcy will more likely trigger a liquidity crisis. At the same time, no automatic stay may lead to a creditor race to seize assets, thus possibly accelerating the possibility of financial distress and bankruptcy. Interestingly, work at the global level on developing principles and guidelines for an effective insolvency and creditor right system suggests that there should preferably be an automatic stay on assets for at least some initial period (World Bank, 2001). This varies from La Porta et al. (1998) whom consider in constructing their index the absence of an automatic stay a positive creditor rights feature. This suggests that there are some differences of opinion on what constitute desirable creditor rights features, which in turn may relate to our lack of understanding on how certain creditor rights features affect actual bankruptcy use.

The presence in the law of secured creditor priority and absolute priority of claims in bankruptcy or restructuring (i.e., senior creditors are paid first, then junior creditors, followed finally by shareholders if any residual remains) is another example.

Such priority may deter ex-ante risky financial behavior and thus reduce the likelihood of financial distress. Such feature can also help overcome creditor coordination problems when a corporation is in restructuring. At the same time, if the law stipulates that shareholders receive nothing in bankruptcy, a firm's shareholders may attempt to delay or avoid bankruptcy, including undertaking more high-risk projects when the corporation starts to run into financial distress. Depending on whether the insolvency law stipulates whether managers have to automatically leave when a firm is in bankruptcy, incentives will vary whether managers will act or not on behalf of shareholders, creditors, or neither and whether they will have incentive to take on more or less risks.

These discussions show that each of the specific creditor right features may influence firm and creditor behavior differently and what constitutes a desirable creditor right feature may depend on circumstances or objectives.[4] While we may expect the use of bankruptcy to vary with the strength of (specific) creditor rights, this will also be influenced by the ability of creditors to use these rights, which in turn will depend on the efficiency of the judicial system. Modigliani and Perotti (2000) draw attention to the finding that when a country's enforcement regime is unreliable, transactions may be carried out through some form of private enforcement. La Porta et al. (1997) show the importance of the judicial system, in addition to formal legal rights, for financial market development. Berkowitz, Pistor and Richard (2000) argue that the quality of laws, as

[4] Furthermore, while the work by La Porta et al. (1998) provides some detail on creditor right features, obviously there are many other aspects in which insolvency regimes differ across countries. The work at the World Bank on developing Principles and Guidelines for Effective Insolvency and Creditor Rights Systems mentions, for example, 35 principles countries could adopt or pursue. The effects of these more detailed design features may in turn be reflected in the relative use of bankruptcy across countries. Unfortunately, data on more detailed features are not available in a systematic way.

often measured by the country's legal origin, is only a crude proxy for the effectiveness of legal systems – instead it is the effective enforcement of laws rather than the quality of laws that matters.[5]

Whether courts are asked to help resolve financial distress may also similarly depend on the efficiency of the judicial systems. Creditors may be more likely to undertake the costs of filing for bankruptcy if they are able to effectively use the courts in the case of default. A country with strong and efficient legal enforcement might thus see more frequent use of the statutory provisions provided in the legal code. At the same time, if enforcement is strong, we may expect debtors and creditors to try to avoid risky behavior, thereby reducing the chances of financial distress and bankruptcy. Alternatively, if enforcement is weak, debtors and creditor may try to work out a situation of financial distress through private negotiations, since the transaction costs of using an inefficient enforcement system may be too high. At the same time, in countries with weak judicial systems, debtors may engage in more risky financial behavior, thus leading to more financial distress.[6] This suggests that variations in enforcement efficiency could cause differences in the use of formal bankruptcy procedures, even if bankruptcy laws are broadly similar.

---

[5] For transition economies, Pistor, Raiser and Gelfer (2000) show that the laws on the books have limited effects on financial market development, but that measures of effective enforcement do. Rajan and Zingales (1999 and 2002) also provide evidence that argues for factors other than legal origin as predictors of stock market development.

[6] Large-scale corporate financial distress provides another specific setting to examine the effects of the efficiency of the judicial system relative to the formal laws. For example, Claessens, Djankov, and Klapper (2002) found that in a sample of East Asian countries, creditors are more likely to incur the costs of bankruptcy if ex-ante creditor rights and ex-post judicial efficiency indicate a likely recovery of losses.

The impact of the (lack of) judicial efficiency may also vary by specific creditor right as the need for enforcement varies. The absence of an automatic stay on assets may, for example, be very valuable to creditors when the judicial system is weak as it can force debtors to negotiate out of court. But in a strong judicial system, the presence of an automatic stay may be beneficial as it preserves the going concern value of firms in reorganization, thereby reducing the chances of eventual bankruptcies, without negatively affecting the value of creditors claims as an efficient court oversees the estate. More generally, the features of an insolvency system are designed to deal with specific issues, such as too risky behavior by debtors, creditor races to grab assets, the preservation of going concern value, the maintenance of priorities among claims to preserve incentives for monitoring, etc. The degree to which the effectiveness of a specific feature depends on the judicial system and its consequent relationship with actual bankruptcy use is likely to differ.

In addition to exploring the relationship between the use of bankruptcy and the features of creditor right regimes, we also want to investigate the relative role of bank-oriented versus market-oriented financial systems. As discussed by Allen and Gale (2000), Levine (1999), and Demirguc-Kunt and Levine (1999), countries differ in the structure of their financial system. The relation of the orientation of the financial system with the use of bankruptcy is unclear, however. In bank-oriented economies, firms often depend on a single, powerful banking relationship as a primary source of all forms of external finance, which may include both debt and equity financing. In market-oriented economies, firms often have multiple bank lenders and widely held publicly traded equity. We would expect that the arms-length banking relationships found in market-

oriented systems present more incentive for creditors to use formal bankruptcy measures to coordinate among creditors. As shown in Gilson, John, and Lang (1990), firms in the United States that use in-court bankruptcy proceedings have a smaller percentage of debt owed to banks and a greater number of lenders.

This suggests that creditors in market-based economies may benefit more from those aspects of a bankruptcy law that aim to overcome collective action problems among creditors. Also, firms in bank-oriented economies tend to have closer relationships with their primary bank and the bank may also have an equity investment in the firm. Creditors in bank-oriented economies may therefore have less need, or be less inclined, to use formal (and costly) bankruptcy filings to resolve financial distress. Evidence for Japan and Germany indeed suggests that borrowers' main banks not only help avoid costly financial distress, but also act as coordinators of financial support and restructuring in times of financial distress. At the same time, in bank-based systems there may be scope for conflicts of interest between the role of banks as creditor and as equityholder, making the decision to file for bankruptcy less based on the interests of debt claims alone. More generally, a bank-oriented system may have more scope for perverse relationships between financial institutions and corporations, which may deter filings for bankruptcy. Claessens, Djankov, and Klapper (2002) show that firms in East Asia with a bank as their controlling shareholder are less likely to use bankruptcy as a means of resolving financial distress. On the other hand, since firms in bank-oriented economies have typically a greater percentage of bank debt, we might expect higher leverage to lead to a higher number of bankruptcies in bank-oriented systems.

Furthermore, we want to test whether countries with more significant new business entry restrictions have fewer bankruptcy filings. In previous literature, Dunne, Roberts, and Samuelson (1988) find that entry and exit rates within industries are highly correlated – industries with higher than average entry rates tend to also have higher than average exit rates. The lack of entry would make for a less competitive industry, which in turn could imply fewer exits it profitability is kept high by entry barriers, as discussed extensively in the industrial organization literature (i.e., Hopenhayn, 1992).[7] It could also be that countries that have more efficient judicial systems also allow for easier entry, which would mean that the rate of entry is a proxy for a country's judicial efficiency.

We also want to explore the relationship of the distribution of firm size with the occurrence of bankruptcy. On one hand, a larger share of small firms may reduce the number of bankruptcy relative to the total number of firms, as small firms are less likely to incur the cost of a formal bankruptcy procedure. On the other hand, small firms may be more risky and consequently a large share of small firms in an economy may raise the relative number of bankruptcies.

In addition to these variables, we also expect that the general development of the country, the level of economic growth, the occurrence of a systemic banking crisis and the level of real interest rates will affect the relative use of bankruptcy. We expect more developed countries to have more market-based economies and to use formal bankruptcy more often to resolve financial distress. We expect countries experiencing negative growth to have higher rates of defaults. The occurrence of a systemic banking crisis may indicate periods of not only economic slowdown but also a period during which

[7] For a review of the literature see Caves (1998).

borrowers are more constrained in finding additional bank financing and more likely to file for bankruptcy. Finally, we expect to find that higher real interest rates are associated with more defaults it increases the cost of financing.

3. Data and Summary Statistics

The number of total commercial bankruptcy filings was collected from government and private sources for 35 countries around the world for all available years between 1990-1999.[8] We include both firms that file for liquidation and reorganization under the bankruptcy code. This measures the total use of the bankruptcy law and the judicial system to resolve corporate financial distress. In order to compare the relative use of bankruptcy across countries, we need to normalize the number of bankruptcy filings. We use the total number of firms, as provided by Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2002) and official country statistical handbooks.[9] Tables 1 and 2 show some summary statistics for the countries in our sample panel.

To explain the relative use of bankruptcy, we include as explanatory variables measures of macroeconomic performance, financial structure, efficiency of judicial system, other institutional measures, and the specific creditor rights discussed above. We expect that the number of failed firms depends on a country's current and expected

[8] See Appendix 1 for the country sources. In part because there is variation across countries in the definition and implications of bankruptcy, we include all legal proceedings designed to either liquidate or rehabilitate an insolvent firm. Results were qualitatively robust to analyzing only liquidation procedures for those countries that identified those numbers separately.

economic performance, as measured by the current income level and growth of GDP. We include lagged real GDP per capita in US$, $RGDPPC_{t-1}$, and the lagged 1-year growth rate of real GDP, $GDPG_{t-1}$.[10] We also control for periods of systemic banking crises based on the data from Caprio and Klingebiel (2000), D_CRISIS_{t-1}. We also include the lagged real interest rates, $RINTEREST_{t-1}$,

We investigate the effect of a higher concentration of SMEs, measured as the percentage of employment attributed to SMEs collected by Klapper and Sulla (2002) and denoted here by SME_SHARE. To test whether countries with more significant entry restrictions have fewer bankruptcy filings, we use the data collected in Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2002) on the restrictiveness of entry—the time to establish a new business—to test whether entry and exit rates tend to be correlated across countries. This variable is called TIME. To measure the relative orientation of banks versus equity markets, we include a dummy variable provided by Demirgüc-Kunt and Levine (1999), D_MKTORIENT, that identifies countries as market- versus bank-oriented, depending on the relative importance of intermediated (bank) versus direct (capital) financial markets.

We include dummies to indicate legal origins – FRENCH, ENGLISH, GERMAN, SCANDINAVIAN, and TRANSITION. These origins proxy broadly for creditor rights, with English, common law countries being regarded as more creditor-

---

[9] For seven countries, only the total number of manufacturing firms is available. For these countries we extrapolate the total number of firms by sector and legal origin (English, French, etc.). All empirical results are robust to the exclusion of these countries.

[10] The subscript, t, indicates a time series. All other variables are constant over time, but vary by country.

friendly, whereas French, civil law countries are regarded as more debtor-friendly. However, these variables also capture other aspects, including the adaptability of the legal system and elements of the efficiency of the legal system.

We use the La Porta et al. (1998) data for the presence of certain legal features. We use their index of CREDITOR RIGHTS, consisting of the summation of four dummy variables, RESTRICTIVE REORGANIZATION, NO AUTOMATIC STAY ON ASSETS, SECURED CREDITOR PRIORITY, and MANAGEMENT DOESN'T STAY, with a highest possible score of four. We also use the individual sub-indexes. In addition to legal origins, which are exogenously determined, and the presence of specific creditor rights, we expect the implementation of laws and the efficiency of the judicial system in the country to be a significant factor in the use of bankruptcy. We therefore also include an index of the efficiency and integrity of the legal environment, RULE of LAW, as reported for most countries by La Porta et al. (1998) and for transition economies by Pistor (2000). As an alternative measure regarding the efficiency of the judicial system, we use a "legality" index, which is the weighted average of indexes provided by Business International Corporation of the Efficiency of the Judiciary, Rule of Law, Corruption, Risk of Expropriation, and Risk of Contract Repudiation (Berkowitz, et al., 2002).[11]

The explanatory variables we use fall into several categories: general development (RGPPPC), the state of the economy and business cycle (lagged GDPG, D_CRISIS, R_INTEREST), the degree of entry and the structure of the economy (SME-SHARE, TIME); the legal and financial structure of the economy (ORIGIN, D_MKTORIENT), and the creditor rights and judicial system (CREDITOR RIGHT

[11] This index is unavailable for transition economies.

INDEX, INDIVIDUAL RIGHTS, and RULE OF LAW). Since some of these variables may capture similar determinants, we report the correlation coefficients between these explanatory variables in Table 3. The Table shows that in general, there is not a high correlation between the various variables, with almost all correlation coefficients below 0.3, and many below 0.1. The only exceptions are the correlation between D_CRISIS and GDPG, which is -0.311, as systemic crisis are often accompanied by economic declines and between R_INTEREST and RULE OF LAW, which is -0.370, as more efficient legal systems tend to have lower real interest rates. The other exception is between RGDPPC and RULE OF LAW, which has actually a correlation of 0.774. This high correlation is to be expected as more developed countries will tend to have more efficient judicial systems.

4. Empirical Results

We set up the regressions as a panel of country and years. Since we do not have the same number of years in which we have observation on bankruptcy rates for each country (Table 2), we have an unbalanced panel of at most 273 observations (for some regression we have 252 observations as some variables are missing). Our first regression results are shown in Table 4. The specification used always includes the level of GDP per capita, RGDPPC, lagged GDP growth rate, GDPG, a dummy for whether the country experienced a systemic financial crisis during the period, D_CRISIS, and the real interest rate, R_INTEREST. Columns (1-4) shows the base regression result where the specification has no country dummies, while the column (5) regression does have dummies. In column 1, we find that countries with higher levels of real GDP per capita

have higher uses of bankruptcy, with the coefficient significant at the 1% level. This suggests that greater overall development and more market-based economies are consistent with greater judicial efficiency and more court usage. Lagged GDP growth rate has the expected negative sign, i.e., a growth slowdown increases the use of bankruptcy, and the coefficient is statistically significant at the 1% level. The systemic crisis dummy has the expected positive sign, but is not statistically significant.[12] The real interest variable is also not statistically significant.

The next regression, Column 2, includes the market orientation variable. The significantly positive coefficient on D_MKTORIENT shows that bankruptcy use is greater in countries with more use of market financing and less in bank-based systems. This supports our hypothesis that countries in which banks have closer relationships with borrowing firms and where there are less dispersed creditors, have less need for court-driven coordination among creditors, and are thus less likely to use bankruptcy to resolve distress. The fact that leverage is higher in bank-based systems does not seem to outweigh this effect.

Table 4, Column 3, shows the effect of the ease of new business entry on the use of bankruptcy. We find a significantly negative relationship between the time required to operate a new business and the use of bankruptcy – countries in which it is more restrictive and difficult to open a new business also have lower rates of bankruptcy. One explanation is that both procedures – registering a new business and filing for bankruptcy

[12] This finding may reflect the reduction in access to financing during a crisis. Using the percentage change in domestic credit (not reported) we find a significantly negative coefficient, which suggests that bankruptcy filings increase during periods of reduced access to financing.

– are dependent on an efficient public sector, including an efficient judicial system. This seems not generally the case, however. Germany, for example, which has a high index of judicial efficiency, requires a relatively long time to start a new business, 90 working days, and has a relatively low average bankruptcy rate of only 1.03% over the period 1992-98. In contrast, Canada, which also has a high level of judicial efficiency, requires only 2 days to start a new business and has a relatively high average bankruptcy rate of 2.96% over the period 1990-98. The significant relationship may rather reflect that countries that allow relatively easy business entry permit a more natural "learning-curve", during which relatively more firms are expected to fail, while countries that require, for example, more documentation of qualifications and financial backing, may have lower rates of business defaults. Another, related explanation is that by restricting competition through entry, countries assure the profitability and allow the survival of less efficient firms, thus keeping the overall bankruptcy rate low.

In Column 4 we include the share in total employment of small and medium sized enterprises (SMEs). This variable is collected from a variety of sources using different definitions over a number of years. It is the only indicator available, may still not be a robust indicator of the importance of small firms to the economy. It is, however, very significantly negative, suggesting that SMEs are less likely to use bankruptcy courts. This may be because of the high fixed costs involved in using legal proceedings and courts, which makes using formal bankruptcy to resolve financial distress less efficient for SMEs. Furthermore, SMEs may rely more on a smaller number of creditors, making out of court negotiations more likely. Also, SME failures may more likely reflect full "economic" distress as going concern values are low relative to liquidation values. This

suggests that SMEs that fail have less need for bankruptcy procedures to preserve going concern value through formal distribution of firm assets and rather see (secured) creditors liquidate the firm out of court.[13]

Finally, in Column 5 we introduce individual country-dummies to correct for any country differences. We find that the significance of some of the variables changes. In particular, the level of GDP per capita and the lagged output growth rates are no longer statistically significant, which can be expected as the country dummies control for much of each country's overall macroeconomic and institutional environment. The systemic crisis dummy becomes statistically significant, while the real interest rate has a positive, but still insignificant sign. The fact that most country variables are not statistically significant is not surprising since the regression includes country dummies that explain most of the cross-country variation in bankruptcy usage.

We next introduce the legal variables for our complete sample. We start with the relationship between legal origins and bankruptcy rates. Table 5, Column (1) shows that countries with French and German civil law codes – which are typically categorized as having weaker creditor rights and less efficient judicial systems – use bankruptcies significantly less than countries in the common law orientations.[14] In addition, we find that transition countries have lower use of bankruptcy, perhaps because their legal codes and judicial systems are newer and because creditors and borrowers have less experience using the courts to resolve distress. It could also be that during this period firms were

[13] This result may also be partially explained by the high correlation between the size of the SME sector and legal origins, and in turn the strength of creditor rights, as shown by Klapper and Sulla (2002).

(still) being bailed-out by banks and governments as there was a lack of hard-budget constraints in many transition economies. Column (2) includes the index of rule of law, which proxies for the efficiency of the legal environment. We find this measure to be significantly positively related to the occurrence of bankruptcy – the greater the likelihood of a creditor speedily and successfully collecting in the court, the more likely creditors are to use formal and costly bankruptcy proceedings in the case of default. When we include both legal origin and rule of law, Column (3), we find that both are statistically significant, but that the coefficient for the rule of law variable is smaller and loses some of its significance. This can probably be explained by the correlation between the legal family of a country and the efficiency of its legal system (as already noted by La Porta et al. (1998)).[15]

Next we study the importance of the overall strength of creditor rights by including the index CREDITOR RIGHTS in the regression in Column 4. Interestingly, the overall strength of creditor rights is negatively, but not significantly related to the occurrence of bankruptcy across countries. An argument could be made that on one hand stronger rights deter bankruptcy – as debtors and creditors both avoid risky financing patterns and prefer to negotiate out of court in times of financial distress.[16] On the other hand, stronger rights may make bankruptcy procedures more effective and thus be used

[14] The exception is Scandinavia, which has significantly higher bankruptcies than English countries, although this may be a result of Scandinavia's recent banking crisis and the fact that all Scandinavian countries are high-income.

[15] As a robustness check, we substitute the rule of law index with a "legality" index for all regressions and we find that our results remain equally significant. However, for these regressions we cannot include the transition countries as the index is not available for these countries.

[16] However, often, even in the US, when parties reach an agreement outside of court they frequently formally file for bankruptcy to avoid future contract disputes.

more. The net effect may be that the aggregate creditor rights are not significantly related to the occurrence of bankruptcy. When we also include the degree of judicial efficiency in Column 5, we find that the coefficient for creditor rights remains statistically insignificant. This provides further support for the hypothesis that the overall strength of creditor rights has two offsetting effects: the deterrence part, with a negative relationship with bankruptcy use, and the efficiency of actual usage part, with a positive relationship with bankruptcy use. The latter relationship is picked up in part in this regression by the efficiency of the legal system, which thus weakens the deterrent part of creditor rights, making the coefficient for creditor rights more negative, although still insignificant.

Thus far our interpretation is based on an analysis of the strength of aggregate creditor rights, and not yet its individual components. As discussed before, each of the four separate creditor rights may have a different effect on the occurrence of filing for bankruptcy, which may explain why we did not find a statistically significant effect of the aggregate creditor rights index on bankruptcy use. We therefore next analyze the relationship between the four separate indexes and the occurrence of bankruptcy, with regression results reported in Table 6, repeating the regression with tehe oevrall CREDITOR RIGHTS index in column 1.[17] Of the four subindexes, one is statistically significantly positive – RESTRICTIVE REORGANIZATION in Column 2 – and one is statistically significant negative – NO AUTOMATIC STAY ON ASSETS, in Column 3.

[17] These regressions exclude transition economies since data on the subindices of creditor rights is unavailable. As a result, the number of observations drops from 273 to 252.

The other two subindexes, SECURED CREDITORS PAID FIRST and MANAGEMENT DOES NOT STAY, are not statistically significant.

These differences suggest that the deterrence and actual bankruptcy usage effects vary by creditor rights. The presence of restrictions for going into reorganization, such as creditors' consent, seems to provide creditors with more legal tools and weakens the debtor's degrees of freedom, leading to more use of bankruptcy. The ability of secured creditor to seize assets even when a firm has filed for reorganization (no automatic stay), in contrast seems to deter usage of bankruptcy. This suggests that the presence of an automatic stays aimed at avoiding creditor races makes bankruptcy a more efficient tool to use for creditors. The no stay provision may, however, still be useful in weak judicial environments as otherwise creditors may be too much as the discretion of the judicial system.

Interestingly, the index of priority of secured creditors is not significant. This may indicate that the priority creditor right feature deters risky behavior and thus reduces the probability of financial distress. It may also be that laws permitting secured creditors rights do not relate to usage of bankruptcy, but rather allow a creditor to seize its secured assets out of court. It may also be that the specific secured creditor right is less important than having a business environment that allows, for example, easy registering of collateral and the presence of courts which speedily enforce secured claims (before the creditor can liquidate the asset). The insignificant sign for the management does not stay index may reflect that there is on one hand a deterrent effect of having to replace management when using bankruptcy in those cases when incumbent management provides using skills and know-how. For other firms, there may in contrast be some

value for creditors of being able to replace management immediately when using bankruptcy procedures. For example, incumbent management may be delaying unnecessary painful restructurings. On balance, an insignificant sign results. Note that in these regressions we control for the effects of the judicial efficiency on the likelihood of bankruptcy by including our rule of law variable that consistently has a positive relationship with the number of bankruptcies.

To further test for the interaction between the effects of judicial efficiency and the individual and aggregate creditor rights, we run a set of regressions where we include, in addition to the creditor rights (sub-) indexes and the judicial efficiency index, also the interaction between the two indexes. As shown in Table 7, we find that the coefficients for the interaction variables between the aggregate creditor rights index and most of the creditor rights subindexes have statistically significant negative signs, with the exception of NO AUTOMATIC STAY ON ASSETS, which is significantly positive. At the same time, the creditor rights index and the subindexes themselves are mostly statistically significantly positive, with again the exception of the NO AUTOMATIC STAY ON ASSETS index which is negative.

These regression results confirm our earlier results that speedy action by the courts in itself leads to more usage of bankruptcy, as does the presence of stronger creditor rights, except for NO AUTOMATIC STAY ON ASSETS. The sign for the interaction terms, however, suggests that there is some substitution between the two. In countries with high judicial efficiency, speedy action by the courts substitutes to some extent for strong creditor rights and encourages use of bankruptcy procedures. Well functioning courts, for example, may judge appropriately the balance between the

benefits and costs of having management stay or leave when filing for bankruptcy. Well-functioning courts may also provide the right judgement whether the debtor is cooperative or not in making restructuring proposals. This substitution effects in turn suggests that in countries with weak judicial proceedings creditors will use bankruptcy – a costly resolution – only if they have very strong entitlements. In others words, in weak judicial settings, creditor rights may have to be stronger to compensate for inefficiencies in the courts.

5. Conclusion

Creditor rights affect not only the ex-post resolution of distressed corporations, but also influence ex-ante incentives and an economy's degree of entrepreneurship more generally. In this paper, we explore the effect of various creditor rights on the actual use of bankruptcy procedures. We start with reporting the relative number of commercial bankruptcy filings in 35 countries for the years 1990-99. We use this data to investigate which legal, financial and other country characteristics affect the likelihood that formal bankruptcy procedures are used to resolve financial distress. We find, correcting for overall development and macroeconomic shocks, that market-oriented economies are more likely to use bankruptcy than bank-oriented economies. This may be attributed to the weaker banking relationships and the stronger need for a legal framework to assist with coordination among creditors. We find that countries with more efficient and speedy procedures to open a new business have greater bankruptcy use. This may reflect that firm entry and exit rates are related as well as overall more effective legal and regulatory processes. And we find that the presence of more small and medium firms is associated

with less usage of bankruptcy, which may reflect that the costs of using formal bankruptcy procedures are too high for small firms.

We find that bankruptcies are higher in Anglo-Saxon countries, which may more efficient judicial systems, but could also reflect these systems are more risky and entrepreneurial. We find that an overall index of stronger creditor rights is not associated with more use of bankruptcy, but we find important differences in these effects by individual creditor rights. Specifically, we find that the presence of a "no automatic stay on assets" is associated with fewer bankruptcies and the presence in the law of a "restriction on reorganizations" with more bankruptcies. These results are also not independent of the efficiency of the judicial system. We find that greater judicial efficiency is associated with more use of bankruptcy, but that the combination of stronger creditor rights with greater judicial efficiency leads to less use, suggesting some substitution between strong rights and greater judicial efficiency. These findings suggest that there are important incentive effects of insolvency systems combined with good judicial systems encouraging less risky behavior and more out-of-court settlements. They also suggest that in countries with weak judicial proceedings, strong creditor rights are more necessary to compensate for weaknesses in legal enforcement.

References:

Acemoglu, Daron, Simon Johnson, and James A. Robinson, 2001, The colonial origins of comparative development: an empirical investigation, *American Economic Review* 91, 1369-1401.

Allen, Franklin and Douglas Gale, 2000. *Comparing financial systems*, Cambridge, Mass: MIT Press

Meghana Ayyagari, Thorsten Beck and Asli Demirguc-Kunt, 2002, Small and Medium Enterprises across the Globe: A New Database, mimeo.

Berkowitz, Daniel, Katharina Pistor and Jen-Francois Richard, 2002, Economic Development, Legality, and the Transplant Effect, Forthcoming in the *European Economic Review*.

Beck, Thorsten, Ross Levine, and Norman Loayza, 2000, Finance and the sources of growth, *Journal of Financial Economics* 58, 261-300.

Berglof, Erik and Ernst Ludwig Von Thadden, "The Changing Corporate Governance Paradigm: Implications for Transition and Developing Countries", Working Paper, June 1999

Coffee, John, 2000, Convergence and its Critics: What are the Preconditions to the Separation of Ownership and Control, mimeo, Columbia University.

Caprio, Gerard and Daniela Klingebiel, 2002. Episodes of Systemic and Borderline Financial Crisis, in D. Klingebiel and L. Laeven (ed.), Managing the Real and Fiscal Effects of Banking Crises, Discussion Paper No. 428, Washington: World Bank.

Caves, Richard, 1998. Industrial Organization and New Findings on the Turnover and Mobility of Firms, *Journal of Economic Literature*, v36, n4, December, 1947-82.

Claessens, Stijn, Simeon Djankov, and Leora Klapper, 2002. Resolution of Corporate Distress in East Asia, forthcoming, *Journal of Empirical Finance*

Demirguc-Kunt, Asli and Ross Levine, 1999. Bank-Based and Market-Based Financial Systems: Cross-Country Comparisons, World Bank working paper.

Demirguc-Kunt, Asli and V. Maksimovic, 1998. Law, Finance, and Firm Growth, *Journal of Finance*, 53(6), 559-588.

Djankov, Simeon, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer, 2002. The Regulation of Entry, *Quarterly Journal of Economics*

Dunne, Timothy, Mark Roberts, and Larry Samuelson, 1988. Patterns of Firm Entry and

Exit in US Manufacturing Industries, *Rand Journal of Economics*, v19, Winter, 495-515.

Gilson, Stuart, Kose John, and Larry Lang, 1990, Troubled Debt Restructurings: An Empirical Study of Private Reorganization of Firms in Defaults, *Journal of Financial Economics*, 27, 2: 315-353.

Hart, Oliver, 2000, Different Approaches to Bankruptcy, National Bureau of Economic Research, Working paper 7921, Cambridge, Massachusetts, September.

King, Robert, and Ross Levine, 1993. Finance, Entrepreneurship, and Growth: Theory and Evidence, *Journal of Monetary Economics*, 32(3), 513-542.

Klapper, Leora and Victor Sulla, 2002, SMEs Around the World: Where Do They Matter Most?, World Bank working paper.

La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer, 1999. Ownership Structures Around the World, *Journal of Finance*, December, Volume 54. No. 2, 471-517.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny, 1997. Legal Determinants of External Finance, *Journal of Finance* 52: 1131-1150.

_____,1998. Law and Finance, *Journal of Political Economy*: 106: 1113-55, December.

_____, 2002, Investor Protection and Corporate Valuation, *Journal of Finance*, Volume 57. No. 3, 1147-1170.

Laughran, Timothy, Jay Ritter, and Kristian Rydqvist, 1994. Initial Public Offerings: International Insights, *Pacific Basin Finance Journal*, 2, 165-199.

Levine, Ross, 1999. Law, Finance, and Economic Growth, *Journal of Financial Intermediation*, January, 17-57.

Modigliani, Franco and Enrico Perotti, 2000. Security Markets versus Bank Finance: Legal Enforcement and Investor Protection, *International Review of Finance*, vol 1 no 2, p. 81-96, 2000.

.

Pistor, Katharina, 2000, Patterns of Legal Change: Shareholder and Creditor Rights in Transition Economies, *The European Business Organisation Law Review* Vol. 1 Nr. 1, 59-108.

Rajan, Raghuram and Luigi Zingales, 1995. What Do We Know about Capital Structure? Some Evidence from International Data, *Journal of Finance*, December, 1421-1460.

_____, 1998, Financial Dependence and Growth, *American Economic Review* 88, 559-586.

_____, 1999, "The Politics of Financial Development", mimeo, University of Chicago.

_____, 2002, The Great Reversals: The Politics of Financial Development in the 20th Century, mimeo, University of Chicago.

Stiglitz, Joseph, 2001, Bankruptcy Laws: Some Basic Economic Principles. In *Resolution of Financial Distress* (Stijn Claessens, Simeon Djankov, and Ashoka Mody, eds.), World Bank Institute, Washington, D.C., pp. 1-23.

Stulz, Rene and Ronald Williamson, 2001, "Culture, Openness, and Finance", NBER working paper 8222.

World Bank, 2001, Principles and Guidelines for Effective Insolvency and Creditor Rights Systems, April Draft, available at www.worldbank.org/legal.

Table 1: Summary Statistics, by Country

Number of Bankruptcies was collected from sources listed in Appendix 1. *BNKRPT_FRM* is the ratio of the number of bankruptcies to the number of firms. Real GDP per capita in US$ (R*GDPPC*), 1-year growth rates of GDP (*GGDP*), and real interest rates (*RINTEREST*) are from the International Financial Statistics. Statistics are reported as the average over the period of available years.

Country	Available Years	Number of Bankruptcies	BNKRPT_ FRM (%)	RGDPPC (US$, 1995)	GGDP (%)	RINTEREST (%)
ARGENTINA	92-99	2,144.38	0.12	7,567.47	6.37	4.26
AUSTRALIA	90-99	5,505.17	2.10	21,120.16	4.47	8.50
AUSTRIA	90-99	2,065.10	1.33	28,774.78	2.58	3.73
BELGIUM	90-99	4,850.20	2.59	26,784.65	2.10	3.32
CANADA	90-98	12,696.67	2.96	19,280.07	1.93	6.29
CHILE	90-99	88.60	0.28	4,195.95	7.66	13.22
COLOMBIA	96-99	225.50	0.16	2,411.81	2.81	19.99
CZECH REPUBLIC	92-96	1,729.40	1.49	4,755.23	-0.78	-2.33
DENMARK	90-99	2,375.90	1.53	33,582.58	1.93	7.77
FINLAND	90-98	5,106.11	4.14	25,587.28	1.39	6.34
FRANCE	90-99	51,671.75	2.62	26,293.72	1.65	6.64
GERMANY	92-98	21,152.57	1.03	29,782.87	1.46	8.43
GREECE	90-94	857.4	0.29	10,987.33	1.20	9.18
HONG KONG	90-98	1,518.60	0.55	22,610.76	4.98	2.33
HUNGARY	92-96	8,425.40	1.99	4,252.39	-2.22	4.74
IRELAND	90-99	788.60	2.74	17,580.34	6.47	5.23
ITALY	90-96	8,663.14	0.54	18,431.58	1.61	7.64
JAPAN	90-99	14,000.60	0.22	41,709.64	2.18	3.61
NETHERLANDS	90-99	3,996.00	1.30	27,106.94	3.44	5.63
NEW ZEALAND	93-98	716.00	3.67	15,981.80	3.54	9.42
NORWAY	90-98	3,546.56	1.83	31,786.32	3.44	8.02
PERU	93-99	145.14	0.05	2,180.54	4.92	26.87
POLAND	90-96	3,319.57	0.23	2,984.64	0.99	-5.34
PORTUGAL	91-99	516.44	0.08	10,791.99	2.73	7.95
RUSSIA	95-98	2,770.75	0.31	2,274.35	-4.80	51.49
SINGAPORE	90-99	227.80	3.06	21,414.20	8.06	4.03
SOUTH AFRICA	90-99	2,918.60	4.62	3,944.43	1.38	6.54
SOUTH KOREA	90-98	162.67	0.17	9,780.62	5.75	3.29
SPAIN	90-99	518.60	0.02	14,764.81	2.59	5.91
SWEDEN	90-99	13,917.10	7.61	27,088.16	1.36	7.57
SWITZERLAND	90-98	9,212.56	3.33	44,345.91	1.08	3.71
THAILAND	90-99	371.70	0.13	2,480.25	6.03	7.34
TURKEY	98-99	1,496.00	0.86	3,149.98	5.31	-5.44
UK	93-98	46,583.83	1.85	18,942.57	2.61	3.75
US	90-99	55,752.60	3.65	27,344.91	2.97	5.56

Table 2: Summary Statistics, by Country

D_MKTORIENT is a dummy equal to 1 if the country is market-oriented and equal to 0 if the country is bank-oriented (Demirguc-Kunt and Levine, 1999). *TIME* is the number of business days required for a business to become operational (Djankov et al., 2000). *SME_SHARE* is the percentage of total employment in the SME sector (Ayyagari, Beck, and Demirguc-Kunt, 2002.) *RULE OF LAW* is an index of legal and judicial efficiency (La Porta, et al., 1998 and Pistor, 2000.) *CREDITOR RIGHTS* is an index from 1 to 4 (La Porta, et al., 1998 and Pistor, 2000.)

Country	D_MKTORIENT	TIME	SME_SHARE	LEGAL ORIGINS	RULE OF LAW	CREDITOR RIGHTS
ARGENTINA	0	71	70	French	5.35	1
AUSTRALIA	1	3	51	English	10	1
AUSTRIA	0	154	66	German	10	3
BELGIUM	0	42	69	French	10	2
CANADA	1	2	59	English	10	1
CHILE	1	78	87	French	7.02	2
COLOMBIA	0	55	67	French	2.08	0
CZECH REPUBLIC	0	97	64	Transition	8.3	3
DENMARK	1	21	69	Scandinavian	10	3
FINLAND	0	32	59	Scandinavian	10	1
FRANCE	0	53	63	French	8.98	0
GERMANY	0	90	60	German	9.23	3
GREECE	0	53	87	French	6.18	1
HONG KONG	1	41	62	French	8.22	4
HUNGARY	0	53	46	Transition	8.7	3.75
IRELAND	0	25	67	English	7.8	1
ITALY	0	121	80	French	8.33	2
JAPAN	0	50	72	German	8.98	2
NETHERLANDS	1	68	76	French	10	2
NEW ZEALAND	0	17	61	English	10	3
NORWAY	0	24	59	Scandinavian	10	2
PERU	1	171	62	French	2.5	0
POLAND	0	26	68	Transition	8.7	2.25
PORTUGAL	0	99	63	French	8.68	1
RUSSIA	0	69	80	Transition	3.7	3
SINGAPORE	1	36	13	English	8.57	4
SOUTH AFRICA	1	30	44	English	4.42	3
SOUTH KOREA	1	46	82	German	5.35	3
SPAIN	0	83	80	French	7.8	2
SWEDEN	1	17	61	Scandinavian	10	2
SWITZERLAND	1	88	73	German	10	1
THAILAND	1	39	87	French	6.25	3
TURKEY	1	55	61	French	5.18	2
UNITED KINGDOM	1	11	56	English	8.57	4
UNITED STATES	1	7	52	English	10	1

Table 3: Cross-Country Correlations

	RGPPCC	*GDPG*	*D_ CRISIS*	*R INTEREST*	*SME_ SHARE*	*TIME*	*D_MKT ORIENT*	*CREDITOR RIGHTS*	*RULE OF LAW*
RGGPPC	1.000								
GDPG	-0.099	1.000							
D_CRISIS	0.018	-0.311	1.000						
R_INTEREST	-0.227	-0.191	0.008	1.000					
SME_SHARE	-0.204	0.177	-0.154	-0.212	1.000				
TIME	-0.140	-0.022	-0.142	0.189	0.273	1.000			
D_MKTORIENT	-0.047	0.218	-0.203	0.019	0.015	-0.269	1.000		
CREDITOR RIGHTS	-0.029	0.012	0.077	-0.145	-0.147	-0.109	0.193	1.000	
RULE OF LAW	0.774	-0.134	0.069	-0.370	-0.252	-0.279	-0.102	0.063	1.000

Table 4: Cross-Country Regressions

The dependent variable is the ratio of the number of bankruptcies to the number of firms. The regressions are estimated using ordinary least squares with robust standard errors. *LN(GDPPC)* is the log of GDP Per Capita. *GGDP* is the 1-year growth rate of real GDP. *D_SYSTCRISIS* is a dummy equal to 1 in the case of a systemic bank crisis (Caprio and Klingebiel, 2000). *RINTEREST* is real interest rates. *D_MKTORIENT* is a dummy equal to 1 if the country is market-oriented and equal to 0 if the country is bank-oriented (Demirguc-Kunt and Levine, 1999). *TIME* is the number of business days required for a business to become operational (Djankov et al., 2000). *SME_SHARE* is the percentage of total employment in the SME sector (Klapper and Sulla, 2002.) t-statistics are in parentheses, *, **, and *** indicate significance at 10%, 5%, and 1% respectively.

	(1)	**(2)**	**(3)**	**(4)**	**(5)**
	Base Regression	**Market Orientation**	**Business Entry**	**SMEs**	**With Country Dummies**
Constant	0.8904 (1.53)	0.1730 (0.30)	2.2350*** (3.73)	4.1320*** (5.75)	-0.2300 (-0.45)
$LN(GDPPC_{t-1})$	0.0052*** (5.34)	0.0053*** (5.78)	0.0040*** (4.03)	0.0054*** (6.26)	-0.0034 (-0.68)
$GGDP_{t-1}$	-0.0704*** (-2.59)	-0.1003*** (-3.47)	-0.0994*** (-3.44)	-0.0206 (-0.75)	-0.0101 (-0.52)
$D\_SYSTCRISIS_{t-1}$	0.0692 (0.16)	0.3191 (0.77)	-0.2555 (-0.63)	0.4553 (1.14)	0.7054*** (3.05)
$RINTEREST_{t-1}$	-0.0052 (-0.63)	-0.0087 (-1.07)	0.0323*** (2.90)	-0.0199 (-1.62)	0.0088 (1.34)
D_MKTORIENT		1.1239*** (4.98)			
TIME			-0.0208*** (-9.15)		
SME_SHARE				-0.0576*** (-7.54)	
Country Dummies	No	No	No	No	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes
Adj. R-Squared	0.14	0.24	0.31	0.36	0.91
Observations	273	273	265	243	273

Table 5: Cross-Country Regressions with Legal Origins and Legal Efficiency

The dependent variable is the ratio of the number of bankruptcies to the number of firms. The regressions are estimated using ordinary least squares with robust standard errors. *LN(GDPPC)* is the log of GDP Per Capita. *GGDP* is the 1-year growth rate of real GDP. *D_SYSTCRISIS* is a dummy equal to 1 in the case of a systemic bank crisis (Caprio and Klingebiel, 2000). *RINTEREST* is real interest rates. *FRENCH, GERMAN,* and *SCANDINAVIAN* are dummies indicating legal origin (La Porta, et al., 1998). *RULE OF LAW* is an assessment of the "efficiency and integrity" of the legal environment as measure by Business International Corp (La Porta, et al. 1998 and Berkowitz, et al., 2000.) *CREDITOR RIGHTS* is the sum of dummies identifying Restrictive Reorganizations, No Automatic Stay on Assets, Secured Creditors Paid First, and Management Does Not stay in Reorganization (La Porta, et al., 1998 and Pistor, 2000.) t-statistics are in parentheses, *, **, and *** indicate significance at 10%, 5%, and 1% respectively.

	(1)	**(2)**	**(3)**	**(4)**	**(5)**
	Legal Origin	**Rule of Law**	**Legal Origin and Rule of Law**	**Creditor Rights**	**Creditor Rights and Rule of Law**
Constant	3.1452*** (6.11)	-0.4398 (-0.55)	2.8068*** (4.53)	0.9798* (1.76)	-0.3225 (-0.43)
LN(GDPPC $_{t-1}$)	0.0022*** (2.32)	0.0020 (1.57)	0.0009 (0.65)	0.0052*** (5.33)	0.0018 (1.43)
GGDP $_{t-1}$	-0.0990*** (-4.32)	-0.0560** (-1.93)	-0.0986*** (-4.26)	-0.0705*** (-2.59)	-0.0558** (-1.92)
D_SYSTCRISIS $_{t-1}$	0.0666 (0.19)	0.0464 (0.11)	0.0657 (0.19)	0.0792 (0.18)	0.0620 (0.15)
RINTEREST $_{t-1}$	-0.0108* (-1.61)	0.0075 (0.74)	-0.0077 (-1.08)	-0.0060 (-0.72)	0.0064 (0.65)
FRENCH	-2.352*** (-12.64)		-2.3323*** (-11.95)		
GERMAN	-2.3996*** (-12.48)		-2.2680*** (-10.16)		
SCANDINAVIAN	0.1600*** (0.34)		0.2032 (0.44)		
TRANSIT	-2.4683*** (-5.62)		-2.5908*** (-5.61)		
CREDITOR RIGHTS				-0.0414 (-0.54)	-0.0667 (-0.85)
RULE OF LAW		0.2533*** (2.89)	0.0725** (2.16)		0.2584*** (2.81)
Year Dummies	Yes	Yes	Yes	Yes	Yes
Adj. R-Squared	0.50	0.17	0.50	0.14	0.17
Observations	273	273	273	273	273

Table 6: Cross-Country Regressions with Creditor Rights and Legal Efficiency

The dependent variable is the ratio of the number of bankruptcies to the number of firms. Transition countries are excluded from all regressions because of the unavailability of disaggregated creditor rights. The regressions are estimated using ordinary least squares with robust standard errors. *LN(GDPPC)* is the log of GDP Per Capita. *GGDP* is the 1-year growth rate of real GDP. *D_SYSTCRISIS* is a dummy equal to 1 in the case of a systemic bank crisis (Caprio and Klingebiel, 2000). *RINTEREST* is real interest rates. *CREDITOR RIGHTS* is the sum of dummies identifying Restrictive Reorganizations, No Automatic Stay on Assets, Secured Creditors Paid First, and Management Does Not stay in Reorganization (La Porta, et al., 1998) *RULE OF LAW* is an assessment of the "efficiency and integrity" of the legal environment as measure by Business International Corp (La Porta, et al. 1998 and Pistor, 2000.) t-statistics are in parentheses, *, **, and *** indicate significance at the 10%, 5%, and 1% respectively.

	(1)	**(2)**	**(3)**	**(4)**	**(5)**
	Creditor Rights	**Restrictive Reorganization**	**No Automatic Stay on Assets**	**Secured Creditor Paid First**	**Management Does Not Stay**
Constant	-0.3620 (-0.44)	-0.4936 (-0.59)	0.0931 (-0.11)	-0.2632 (-0.32)	-0.6489 (-0.85)
LN(RGDPPC $_{t-1}$)	-0.0011 (-0.65)	-0.0014 (-0.82)	-0.0014 (-0.80)	-0.0012 (-0.71)	-0.0010 (-0.57)
GDPG $_{t-1}$	-0.1040** (-2.44)	-0.1068*** (-2.65)	-0.0993*** (-2.56)	-0.1024** (-2.37)	-0.1060*** (-2.55)
D_CRISIS $_{t-1}$	0.3072 (0.58)	0.3739 (0.72)	0.1153 (0.22)	0.3444 (0.64)	0.2558 (0.46)
RINTEREST $_{t-1}$	0.0004 (0.03)	-0.0007 (-0.04)	-0.0114 (-0.77)	-0.0025 (-0.16)	0.0074 (0.47)
CREDITOR RIGHTS	-0.0311 (-0.34)				
RESTRICTIVE REORGANIZATION		0.5378** (2.12)			
NO AUTOMATIC STAY ON ASSETS			-0.9093*** (-4.75)		
SECURED CREDITOR PAID FIRST				-0.2384 (-0.77)	
MANAGEMENT DOES NOT STAY					0.2073 (0.79)
RULE OF LAW	0.3506*** (3.61)	0.3393*** (3.76)	0.3715*** (3.83)	0.3623*** (3.55)	0.3654*** (4.28)
Year Dummies	Yes	Yes	Yes	Yes	Yes
Adj. R-Squared	0.18	0.20	0.23	0.18	0.18
Observations	252	252	252	252	252

Table 7: Cross-Country Regressions with Creditor Rights and Legal Efficiency

The dependent variable is the ratio of the number of bankruptcies to the number of firms. Transition countries are excluded from all regressions because of the unavailability of disaggregated creditor rights. The regressions are estimated using ordinary least squares with robust standard errors. *LN(GDPPC)* is the log of GDP Per Capita. *GGDP* is the 1-year growth rate of real GDP. *D_SYSTCRISIS* is a dummy equal to 1 in the case of a systemic bank crisis (Caprio and Klingebiel, 2000). *RINTEREST* is real interest rates. *CREDITOR RIGHTS* is the sum of dummies identifying Restrictive Reorganizations, No Automatic Stay on Assets, Secured Creditors Paid First, and Management Does Not stay in Reorganization (La Porta, et al., 1998), *RULE OF LAW* is an assessment of the "efficiency and integrity" of the legal environment as measure by Business International Corp (La Porta, et al. 1998 and Pistor, 2000.) t-statistics are in parentheses, *, **, and *** indicate significance at the 10%, 5%, and 1% respectively.

	(1)	(2)	(3)	(4)	(5)
	Creditor Rights	**Restrictive Reorganization**	**No Automatic Stay on Assets**	**Secured Creditor Paid First**	**Management Does Not Stay**
Constant	-2.6197*** (-3.23)	-2.0861*** (-3.09)	0.2174 (0.24)	-1.0766 (-1.46)	-2.3879*** (-3.19)
LN(RGDPPC $_{t-1}$)	0.0010 (0.51)	0.0001 (0.07)	-0.0019 (-1.09)	-0.003 (-0.17)	-0.0001 (-0.35)
GDPG $_{t-1}$	-0.0817** (-2.07)	-0.0669* (-1.75)	-0.0937 (-2.47)	-1.011*** (-2.38)	-0.0609 (-1.52)
D_CRISIS $_{t-1}$	0.2075 (0.38)	0.5557 (1.05)	0.2499 (0.48)	0.3105 (0.56)	0.4216 (0.80)
RINTEREST $_{t-1}$	0.0401* (1.87)	0.0270* (1.68)	-0.0184 (-1.14)	0.0108 (0.53)	0.0339* (1.87)
CREDITOR RIGHTS	1.2829*** (2.58)				
RESTRICTIVE REORGANIZATION		4.3785*** (3.35)			
NO AUTOMATIC STAY ON ASSETS			-2.4162*** (-2.95)		
SECURED CREDITOR PAID FIRST				0.9607* (1.76)	
MANAGEMENT DOES NOT STAY					4.3929*** (3.35)
RULE OF LAW	0.5479*** (6.10)	0.4629*** (6.01)	0.3499*** (3.53)	0.4423*** (5.99)	0.5273*** (5.77)
*RULE OF LAW * CREDITOR RIGHTS*	-0.1654*** (-2.89)				
*RULE OF LAW * RESTRICTIVE REORGANIZATION*		-0.4602*** (-2.97)			
RULE OF LAW NO AUTOMATIC STAY ON ASSETS*			0.1785* (1.88)		
RULE OF LAW SECURED CREDITOR PAID FIRST*				-0.1579 (-1.12)	
RULE OF LAW MANAGEMENT DOES NOT STAY*					-0.5447*** (-3.30)
Year Dummies	Yes	Yes	Yes	Yes	Yes
Adj. R-Squared	0.22	0.25	0.24	0.19	0.23
Observations	252	252	252	252	252

Appendix 1: Sources of Bankruptcy Data

Country	Source
AUSTRALIA	Australian Securities and Investment Commission
BELGIUM	National Statistical Office
CANADA	Office of The Superintendent Of Bankruptcy
CHILE	Fiscal Nacional De Quiebras
COLOMBIA	Supersociedades
CZECH REPUBLIC	European Bank of Research and Development (EBRD)
DENMARK	Statistics Denmark
FINLAND	Statistics Finland
FRANCE	Institut National de la Statistique et des Etudes Economiques (INSEE)
GERMANY	Wirtschaftsanalyse
GREECE	National Statistical Service of Greece
HONG KONG	Government of Hong Kong
HUNGARY	EBRD
IRELAND	Dept of Enterprise, Trade and Employment
ITALY	Annuario di Statisticeh Giudiziarie
JAPAN	Teikoku Data Bank
KOREA	OECD Special Report
NETHERLANDS	Statistics Netherland
NEW ZEALAND	NZ Insolvency and Trustee Service
NORWAY	Statistics Norway
PERU	INDECOFI
POLAND	EBRD
PORTUGAL	Ministry of Justice
RUSSIA	Russian Economic Trends Quarterly – Center for Economic Reforms
SINGAPORE	Official Receiver and Public Trustee Office, Singapore
SPAIN	National (Spanish) Statistics Institute
SWEDEN	Statistics Sweden
SWITZERLAND	Schweizerischen Verband Creditform
THAILAND	Statistical Office
TURKEY	Government of Turkey
UNITED KINGDOM	Department of Trade and Industry
UNITED STATES	American Bankruptcy Institute