Resolution of Corporate Distress: Evidence from East Asia's Financial Crisis

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Abstract

The recent financial crisis in East Asia, across countries with very different institutional characteristics, allows the identification of factors that determine the use of bankruptcy as a means of resolving corporate distress. Using a sample of 4,569 publicly traded East Asian firms, we observe a total of 106 bankruptcies in 1997 and 1998. We find that the likelihood of filing is lower for firms with ownership links to banks and families, controlling for firm and country characteristics. In addition, filings are more likely in countries with better judicial systems. Finally, we find that the interaction between strong creditor rights and a better judicial system increases the likelihood of bankruptcy.

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1. Introduction

Both country and firm characteristics affect the way that financial institutions and commercial creditors confront financial distress. Country differences include variations in legal systems, accounting standards, and regulatory frameworks, while firms differ in their capital and ownership structures. In this paper, we address an answered question in the literature of the effect of firm and country characteristics on the likelihood that a firm in financial distress uses formal bankruptcy procedures as a means of resolving corporate distress.

The widespread financial crisis in East Asia caused large economic shocks, varying by degree, across the region. This provides a unique opportunity to investigate the factors determining the use of bankruptcy processes in a number of countries. The East Asian countries that we study – Hong Kong, Indonesia, Japan, Korea, Malaysia, Philippines, Singapore, Taiwan, and Thailand – differ in their institutional frameworks for resolving financial distress, arising in part from the different origins of their judicial systems. One particular difference is the strength of creditor rights, which we document by updating the indices calculated by La Porta et al. (1997).[1] The strength of a creditor to collect payment in the case of default may influence the decision whether to settle a default in or out of court. We expect, therefore, that differences in legal enforcement and judicial efficiency should affect the resolution of financial distress.

Although banks play a critical role in financial intermediation in most East Asian countries, the degree of ownership of corporations by financial institutions varies considerably from country to country. For example, the percentage of firms with bank

ownership is large in Japan and the Philippines and relatively small in Taiwan. In addition, there is regional variation in the concentration of ownership of corporations by "families", (in the literal sense), that may provide preferential supplier credit and purchasing. For example, family ownership plays an important role in Hong Kong, Indonesia, and Thailand. Corporate ownership is an important factor in the resolution of financial distress, since bank- and family-related firms may have access to preferential sources of external credit. The differences in corporate governance among countries and firms may affect the relationship between firms and their creditors that influences the timing, severity, and resolution of financial distress.

For a sample of 4,569 publicly traded East Asian firms, we observe a total of 106 bankruptcies during 1997 and 1998. We find that the likelihood of filing is negatively associated with bank and family ownership, controlling for firm-specific financial measures, such as leverage and (pseudo-) Tobin's Q. The importance of bank and family connections suggests that informational advantages and non-market based resource allocations encourage out-of-court renegotiations and delay the use of formal reorganizations procedures.

We also show the importance of judicial efficiency: Filings are more likely in countries with strong judicial systems and creditor rights. In addition, we find that the interaction between strong creditor rights and a better judicial system increases the likelihood of filing. This suggests that a creditor will only force a firm to file for bankruptcy and incur the related legal costs if ex-ante loan features and ex-post judicial efficacy indicate an adequate chance of recovery of losses.

[1] Within our sample of countries, the legal systems in Japan, Korea and Taiwan are of Germanic origin; Malaysia, Hong Kong, Singapore and Thailand are of Anglo-Saxon origin; Indonesia and the Philippines

The paper proceeds as follows: Section 2 provides a literature review on corporate financial distress and its relationship with creditor protection under different legal systems. Section 3 describes our data and summary statistics for the region. Section 4 presents our empirical results and a discussion of our findings. Section 5 concludes.

2. The Literature

In previous literature, we find comparisons between the bankruptcy systems in developed countries. These studies discuss the effects of different regimes on the ex-ante behavior of firms and on the ex-post efficiency of resolution. In particular, these papers focus on the relative advantages of debtor- and creditor-friendly regimes. For example, debtor-friendly regimes, such as the US bankruptcy law, allow current managers, appointed by the firm's equity holders, to continue managing the firm during reorganization negotiations. Creditor-friendly regimes, such as the UK bankruptcy law, give creditors the power to replace existing managers.

White (1993) and Kaiser (1994) argue that in creditor-friendly regimes, the threat of being fired gives managers strong ex-ante incentive to engage in less risky activities. However, since a new manager may be unfamiliar with the company and unable to ensure a smooth transition, the creditor suffers higher costs of resolution during distress. They suggest that although a debtor-friendly regime may allow incompetent managers to keep their jobs, the creditor has ex-post financial benefits. In addition, debtor-friendly laws encourage managers to seek bankruptcy protection from their creditors, which may allow the firm to survive and ultimately benefit claimants. Yet, it is not obvious which

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are of French-origin.

regime is most cost-efficient and these studies do not establish how the likelihood of bankruptcy filings varies across legal systems.

Related literature suggests that differences between countries concerning creditor rights and judicial efficacy should affect the use of courts to resolve financial distress. Harris and Raviv (1992) argue that bankruptcy law and enforceability are determinants of the variation in debt contracts features. They show that judicial differences across countries affect firm performance and corporate governance decisions, and affect the likelihood of the bankruptcy system being used to deal with financial distress. Rajan and Zingales (1995) find that contractability is enhanced by legal systems that protect creditor rights and punish management and equity holders in the case of financial distress.

The economic costs of bankruptcy have been studied in more detail for bankruptcy filings in the United States, a debtor-friendly system.[2] Gilson (1989) finds that after filing for bankruptcy, managers suffer large personal costs and that more than half of the managers, 52%, are fired. Gilson and Vetsuypens (1994) find that managers that survive after a bankruptcy filing receive significantly lower salaries and bonuses; on average, managers receive only 35% of their previous gross income.

It is not surprising, therefore, that managers of financially distressed firms in the United States prefer private restructuring to public bankruptcy filings. Gilson, John, and Lang (1990) study 169 financially distressed firms and find that only close to half of these firms use Chapter 11 proceedings to restructure their distressed debt. They find that firms that settle out-of-court have more intangible assets, a larger percentage of debt owed to banks, and fewer lenders. Gilson (1997), however, finds that out-of-court

[2] For example, White (1989, 1993, 1994) compare the direct transaction costs of bankruptcy under different regimes, a topic that we do not address in this paper.

restructuring is not necessarily beneficial to the shareholders; firms that resolve financial distress out-of-court are more likely to remain highly-leveraged and more likely, with a likelihood of 33%, to experience further financial distress.

Several papers have examined the effect of corporate ownership on the resolution of financial distress. Japanese firm-level data have been used to examine the main-bank system, which implies both an ownership and lending relationship between a bank and a commercial firm. Hoshi et al. (1990b) find that a bank relationship improves a firm's access to capital and promotes corporate investment in a sample of Japanese firms. In addition, Hoshi, et al. (1990a) show that bank-affiliated firms can more easily renegotiate their terms of credit to reduce the costs of financial distress. Consequently, bank-related firms recover more quickly from financial distress than other firms, and without necessarily using formal reorganization or bankruptcy procedures. This finding is explained in Aoki (1990) and Prowse (1992), who describe the involvement of Japanese banks in management decisions as a form of monitoring and resolution of principal-agent and information problems between the lender and borrower.

Weinstein and Yafeh (1998), however, find that although ties to a bank improve access to capital, they do so at a higher cost; i.e., although bank-controlled firms have access to more capital, the benefits are offset by the rents extracted by the banks. Johnson et al. (1998) estimate excess stock market returns for a cross-section of emerging markets, including the East Asian countries in our sample. They find that weaknesses in corporate governance – defined as the existence of strong links between banks and corporations and non-transparent cross-holdings between corporations – cause larger discounts in asset prices.

3. Data

We use financial and ownership structure variables at the firm level in nine countries at the end of 1996. Our primary data source is the WorldScope database, which contains information on 49 countries. We expanded our sample of firms using the Financial Times Extel database, which contains information on 49 countries. In order to test the significance of corporate ownership, we augmented these data with ownership information from the *Asian Company Handbook 1999* (1998), the *Japan Company Handbook 1999* (1998), Securities Exchange of Thailand Company Handbook, and the Singapore Investment Guide.

The combined sample contains income statement, balance sheet, and corporate ownership information for 5,928 firms. We excluded firms in the financial sector because the accounting standards for income and profits for these firms are significantly different from those in the other sectors. In addition, bankruptcy decisions for banks are driven by other factors, such as concerns about the systemic consequences of closures. We also excluded firms for which data required for our empirical tests was missing. After applying these selection criteria, 4,569 firms were available for our empirical analysis.

To identify firms that legally filed for bankruptcy protection, we collected information from the respective stock exchanges. Since the legal definition of bankruptcy is not consistent across the region, we used as a minimum standard that firms filed for legal creditor protection.[3] Table 1 provides descriptive statistics of our sample.

[3] The majority of firms in our sample filed for bankruptcy in the second half of 1998. In Indonesia, the Philippines, and Thailand, the Bankruptcy Code was amended in August, January, and April, respectively. These bankruptcy reforms increased the number of bankruptcy filings by allowing for Chapter 11-type

Almost 50% of our observations are firms listed on the Japanese exchange, reflecting the absolute size of their economy relative to the other countries. Excluding Japan, however, we have about the same number of firms listed for each country, about 300 firms on average, except for the Philippines (68 firms). As shown in Table 1, in absolute terms and as a percentage of total firms, the largest number of bankruptcies occurred in Thailand, Korea, and Malaysia; the smallest number of bankruptcies occurred in the Philippines, Singapore and Taiwan. As reported in our summary statistics, middle-income countries in the region (Indonesia, Korea, Malaysia, Philippines, and Thailand), which typify less developed financial markets and business law, account for 80% of reported bankruptcies.

We use the methodology developed by La Porta et al. (1999) and extended by Claessens et al. (1999) to study the ultimate ownership structure of East Asian corporations. To distinguish between cash-flow and control rights, we identify various forms of intermediate ownership structures, such as cross-holdings, pyramiding, and deviations from one-share-one-vote rules. For example, suppose that a family owns 11% of the stock of Firm A, which in turn owns 21% of the stock of Firm B. In this case, we contend that the family holds 11% of the control rights of Firm B, which is calculated as the weakest link in the chain of voting rights. In contrast, however, we contend that the family holds only 2% of the cash flow rights of Firm B, which is calculated as the product of the two ownership stakes along the chain.

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reorganization and establishing independent bankruptcy courts. In Indonesia, for example, there were only 11 bankruptcy filings between 1978 and August 1998, and 24 filings in the last three months of 1998. Similarly, in the Philippines, there were only 35 bankruptcy filings between 1982 and 1996, and 52 bankruptcy filings in 1997 and 1998. In contrast, the large increase in the number of bankruptcy filings in 1998 in Hong Kong, Japan, Korea, Singapore, and Taiwan, was caused by the increase in overall financial distress and not because of improvements to the bankruptcy system.

We further distinguish between firms with ultimate owners versus firms that are widely held. Consistent with the methodology used by La Porta et al. (1999), we define ultimate ownership as ownership of 20% or more of outstanding shares. Ultimate owners are further divided into four categories: families, banks, commercial firms, and the state.[4] Furthermore, we identify the "genealogy" of each firm, such as the ownership structure of each firm's ultimate owner. Consequently, we identify as bank-related any firm that is owned by a bank or belongs to a family group that also has ultimate ownership of a bank.

Our results are reported in the last two columns of Table 1. We find that the principal shareholders in the majority of East Asian firms are other commercial firms, not-for-profit foundations, and financial institutions. Corporate ownership structures differ, however, greatly across East Asian countries. Almost 60% of the Japanese firms in our sample are bank-related, while only 9% of Taiwanese firms, and 14% of Korean and Singaporean firms have a bank relationship. Ownership by families is dominant in Hong Kong, Indonesia, and Thailand, where 69%, 72%, and 64% of firms are family-controlled, respectively. In comparison, only 14% of Japanese firms are controlled by a family.

Table 2 shows the median values of financial variables and ratios for firms in our nine countries.[5] We find that prior to the crisis, firms in high-income countries were on average about three times larger than firms in middle-income countries, as measured by total assets and sales.[6] Japanese firms are the largest in our sample, with the median firm having annual sales and assets of half a billion dollars, US$488 and US$457 million

[4] We do not distinguish among individual family members and use the family group as a unit of analysis.
[5] "High-Income" is the weighted average of Hong Kong, Japan, Singapore and Taiwan.
"Middle-Income" is the weighted average of Indonesia, Korea, Malaysia, Philippines, and Thailand.
[6] Levels are converted to end-of-year 1996 US-dollars.

respectively. Thailand has the smallest firms on average, with US$84 and US$51 million in sales and assets, respectively.

The debt-equity mix and the maturity structure of debt also vary significantly by country. In Korea, Japan, and Thailand, debt was on average 70% of corporations' capital structures in 1996, while in Taiwan it was only 42%.[7] Short-term debt was 68% of total debt in Malaysia, but only 45% in the Philippines. These differences affect the relationship between firms and their creditors, and influence the severity and resolution of financial distress. Furthermore, firms in middle-income countries have lower sales-to-debt ratios and higher leverage rates, suggesting that firms in these countries were both smaller and riskier. For example, in 1996 the median firm in Thailand had a sales-to-debt ratio of only 1.52 and a leverage ratio of 0.42. In comparison, the median firm in Singapore, a high-income country, had a sales-to-debt ratio of 3.05 and a leverage ratio of 0.20.

Firms in middle-income countries, however, generally had higher operating margin to sales ratios and higher (pseudo-) Tobin's Q, suggesting better growth opportunities in these countries. Indeed, higher growth rates may have led to the relatively higher use of debt in the middle-income countries. The last column in Table 2 reports the growth in 1998 GDP. Middle-income countries were hit the hardest, with Indonesia and Thailand experiencing a 15% and 8% decline, respectively. Taiwan was the only country that registered high growth, 4.9 percent, in 1998.

Table 3 provides comparative information on bankruptcy law, creditor rights, and the efficacy of the judicial system for the nine East Asian countries in our sample. The

[7] For Hong Kong, Indonesia, Malaysia, the Philippines, and Singapore debt was 61%, 65%, 52%, 56%, and 51% of capital, respectively (Claessens et el., 1998).

information is compiled from detailed survey reports prepared for the Asian Development Bank. The surveys use similar methodology and were conducted by teams of legal experts in each country and reviewed by a regional team to ensure the comparability of results (Asian Development Bank, 1999).

Creditor rights are strongest in countries with Anglo-Saxon and Germanic codes and weakest in countries with French codes. For example, creditors in the Philippines, where the code is of French origin, are barred by the "automatic stay" on assets from taking any collection action against the debtor's assets. In addition, a creditor's security interest does not guarantee priority status. Furthermore, the statutory bankruptcy scheme prohibits creditors from ousting management during reorganization. In contrast, creditors in Malaysia, where the code is of Anglo-Saxon origin, have strong creditor rights.

We use the information presented in Table 3 to construct quantitative indices of creditor protection and the efficacy of the judicial system. Our results are shown in Table 4, where a higher index indicates better creditor rights and judicial efficiency. We find that Indonesia and the Philippines have the weakest creditor protection, while Hong Kong, Singapore, and Taiwan have the strongest creditor protection. In addition, we find that Indonesia, the Philippines, and Taiwan have the weakest judicial system, while Korea and Singapore have the strongest judicial systems.

To construct our index of creditor rights, we use the methodology in La Porta et al. (1997). This index is an average of four indicators of creditor strengths reported in columns 3 to 6 of Table 3. First, the timeliness of rendering a judgement whether to liquidate or restructure once a bankruptcy petition has been filed. For example, the bankruptcy codes in Indonesia, the Philippines, and Thailand do not have a specified

timetable for rendering a judgement.[8] The remaining six countries impose a timetable, such as 60 working days in Hong Kong and Japan and 180 working days in Malaysia. Second, whether the incumbent management remains in control of the company during reorganization or bankruptcy. This is the case only in Indonesia and the Philippines. Third, whether the creditor is barred by the "automatic stay" from taking collection action against the debtor's assets during the bankruptcy proceedings. This is the case only in Indonesia, Japan, and the Philippines. Fourth, whether secured creditors have the first priority of claims to the debtor's assets. This is the case in Hong Kong, Japan, Korea, Malaysia, Singapore, and Taiwan.

In addition, we use columns 7 and 8 of Table 3 to construct an index of the efficacy of the judicial system, shown in Table 4, which report the expense, difficulty, efficiency, and speed of liquidating or restructuring an insolvent corporate borrower. For example, Singapore has the highest ranking, 7, which is an average of the liquidation and restructuring processes, which are both not expensive, easy, efficient, and quick. We use the two indices of creditor rights and judicial efficiency to test the effect of the legal environment on the likelihood of bankruptcy as a means of resolving financial distress.

4. Empirical Results

Table 5 provides descriptive statistics for our independent variables.[9] Panel A shows summary statistics for all firms in our sample. Panel B shows summary statistics for firms that filed for bankruptcy and Panel C shows summary statistics for firms that did not file. Previous literature, such as Barclay and Smith (1995), found that age and

[8] For Indonesia, we refer to the law before the bankruptcy reform in August 1998.
[9] Our choice of explanatory variables is consistent with international adaptations of the Altman Z-score, which estimates a model to predict corporate bankruptcy. See Altman (1984) for a survey.

size significantly affect a firm's ability to obtain external financing as the probability of a firm's failure decreases with age and increases with size. Our summary statistics for the three samples finds, for example, that total sales for firms that did not file versus firms that filed is $19.909 million and $1.668 million, respectively. The age of the firm, however, matters less: Firms that survived bankruptcy are listed, on average, only one year longer than firms that filed for bankruptcy. This is not surprising, since the financial markets in East Asia are relatively new, and, therefore, all listed firms listed are relatively young.

Liquidity ratios are used to measure the exposure of firms to external shocks. For example, the ratio of sales-to-debt (SALDEBT) provides an indication of the firm's ability to pay its liabilities with generated income. This measure should reflect the sensitivity of the firm's solvency to currency and interest shocks. Indeed, we find that firms that filed for bankruptcy had lower sales-to-debt ratios so that even small decreases in sales may have prevented them from making their debt payments. This suggests that firms with higher levels of external debt are more sensitive to shocks and are more likely to require judicial creditor protection.

To measure firms' efficiency prior to the crisis, we look the operating margin, defined as sales minus cost of good sold as a ratio of sales (OISAL). We find that median operating margins are higher for firms that did not file relative to firms that did file. This is consistent with our expectations that firms that filed for bankruptcy were ex-ante more inefficient and financially distressed than firms that survived.

Previous literature, such as Opler et al. (1997), found that a firm's corporate financing decisions depend on various measures of the borrower's future growth

opportunities. We use a (pseudo-) Tobin's Q (TOBINQ), which is a measure of the market's assessment of a firm's investment opportunities, to determine the market's perception of future growth.[10] We find that firms that filed for bankruptcy had lower (pseudo-) Tobin's Q, which may have effected their inability to access credit during financial distress and increased their likelihood of entering bankruptcy.

We also include two dummies to account for differences in corporate ownership. FAMILY is equal to 1 (0 otherwise) if the firm is a member of a family of firms. BANK is equal to 1 (0 otherwise) if the firm is directly owned by a bank or belong to a family that also owns a bank.[11] Only 10% of the bankrupt firms are owned by banks or owned by a group that also owns a bank, compared to 40% of the firms which do not file. Bank-related firms thus appear significantly less likely to file for bankruptcy.

In addition to firm-specific variables, we include country-specific indicators. These measures allow us to test the effect of variations in institutional features, macroeconomic performance, and judicial efficacy on the likelihood of filing for bankruptcy. We include country dummies to identify differences in institutional characteristics. We use the growth of GNP in 1998 as an ex-post measure of economic activity and degree of general financial distress in each country following the crisis. Furthermore, we use our index of creditor rights to study the influence of legal protection on the decision to file. Alternatively, we use dummies to identify the legal-origin in each country, as in La Porta et al. (1998). Finally, we use the interaction term between

[10] Tobin's Q is approximated by the book value of debt plus the market value of equity divided by total assets.

[11] This is an improvement on previous literature that examined bank-related firms in Japan that only took account of direct ownership.

creditor rights and judicial efficiency to test if the ability of the judicial system to enforce creditor rights affects the decision to use the legal system to resolve financial distress.

Tables 6 and 7 show the results of the Logit regressions. Table 6 shows that firms that filed for bankruptcy were more exposed to short-term liquidity constraints and had lower expected market growth. This suggests that firms that filed for bankruptcy were ex-ante riskier than firms that survived.[12]

We also find that firm ownership structures, in particular links to banks and ownership by families, matter. Specifically, we find that bank-affiliated firms and firms with a family-relationship are less likely to file for bankruptcy. The implied elasticities of the coefficients in Table 6, column 1, suggest that family-controlled firms are 30% less likely to file for bankruptcy than non-family-related firms, correcting for their capital structure and country of origin. In addition, bank-related firms are 10% less likely to file for bankruptcy than firms without ownership ties to a bank. The importance of bank and family connections suggests that filings are not based solely on market-principles, since a priori there is no economic reason to expect that certain types of ownership are more likely to avoid bankruptcy. The significance of corporate ownership introduces evidence that ownership ties to a creditor increases the likelihood of renegotiations and out-of-court settlements and decreases the likelihood of bankruptcy.

In the first regression shown in Table 6, the country dummies for Thailand and Korea are significant. This does not explain, however, whether this is due to variation in market features or macroeconomic conditions. Therefore, the second regression in Table 6 tests the effect of the real growth rate of GNP in 1998. This result shows that slower

[12] In addition, we include dummies identifying 2 digit SIC codes, which are not significant and are not reported.

growth rates of GNP significantly increase the number of bankruptcies. Since Japanese firms comprise almost 50% of the observations in our sample, we include the third column, which excludes Japanese firms from the sample, to verify that the results are robust to the exclusion of Japanese firms.

However, negative macroeconomic shocks do not fully explain the variation in bankruptcies, since the Asian crisis affected the entire region. We therefore extend our tests to include variables to capture differences in creditor rights and judicial efficacy. Table 7 shows that we continue to find that financial strength, growth of GNP, and family and bank relationships are negatively related to the likelihood of filings. In addition, the first regression in Table 7 shows that legal origins matter: firms in German-origin systems, which are have stronger rights and are more creditor-friendly, are more likely to file for bankruptcy, while firms in countries with French-origin systems, which are more debtor-friendly, are less likely to file for bankruptcy. This result supports the results found in previous literature that German- (and English-) origin systems permit creditors to force delinquent debtors into bankruptcy.

The second regression in Table 7 reports a positive relationship between our index of the efficiency of the judicial system and the likelihood of filing for bankruptcy. The implied elasticity of the coefficient of judicial efficiency suggests that the probability of filing for bankruptcy increases by 11% for every one-point increase in judicial efficiency. In other words, if the judicial system in the Philippines were to achieve the same level of efficiency as in Singapore, bankruptcy filings would increase by 55%. Similarly, if the judicial system in Indonesia were to achieve the level of efficiency in Hong Kong, bankruptcy filings would increase by more than 20%. The third regression in Table 7

shows a positive relationship between an index of creditor rights and an index of judicial efficacy. These results imply that effective contractability strengthened with a credible threat of bankruptcy enforcement increases the likelihood of filings for in court bankruptcy. We suggest that creditors are more likely to force a firm to file for bankruptcy and incur the related legal costs if ex-ante loan features and ex-post judicial efficacy indicate a recovery of losses.

The differences between Table 6 and Table 7 suggest that it is not only country-specific institutional differences that explain patterns in bankruptcy filings, but also variations in legal origin, efficiency of the judicial system, and creditor rights. Judicial reform can increase the degree to which the bankruptcy system is used to resolve financial distress. Whether increased use of bankruptcy is an ex-ante as well as ex-post efficient mechanism cannot, however, be answered from these results alone.

6. Conclusion

There has been much debate among policy-makers and academics about the benefits and dangers of bank and family ownership of commercial firms.[13] Our evidence for East Asia suggests that family- and bank-relationships provide insurance against likelihood of bankruptcy during bad times, possibly at the expense of minority shareholders. In addition to firm-specific financial risk, we find that the combination of better contractability and judicial efficacy increase the likelihood of bankruptcy filing. This suggests that creditors are more likely to force a firm to file for bankruptcy, with its

[13] In his February 11th, 1999 speech in front of the House Banking Committee Federal Reserve Chairman Alan Greenspan indicated that "the Asian crisis last year highlighted some of the risks that can arise if relationships between banks and commercial firms are too close." For a discussion on the costs and benefits of universal banking, see Saunders and Walter, Eds. (1996).

related legal costs, if ex-ante loan features and ex-post judicial efficiency indicate a likely recovery of losses.

Whether the increased use of bankruptcy is an efficient resolution mechanism cannot be answered from these results alone. Rather, we would need to investigate the ex-ante performance of corporations and measure the dead-weight losses associated with the resolution of financial distress through in-court bankruptcy. This direction of research, however, is not feasible until information becomes available on the resolution of the bankruptcies of financially distressed firms.[14]

[14] The East Asian crisis is too recent to systematically analyze the resolution of bankruptcy proceedings. We can, however, broadly categorize the resolution outcomes for four of the sample countries. Of all privately-held or publicly-traded firms which filed for bankruptcy during 1997 or 1998, the cases resulted in the following decisions, where the numbers for Taiwan include small-size firms:

Country	Liquidated	Reorganized	Dismissed	Unresolved
Indonesia	2	3	20	27
Philippines	4	4	7	9
Taiwan	317	24	38	33
Thailand	7	9	14	48

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Table 1: Summary Statistics on Bankruptcy Filings

Middle Income is the average of Indonesia, Korea, Malaysia, Philippines, and Thailand. High Income is the average of Hong Kong, Japan, Singapore, and Taiwan.

Country	Number of Observations	% Total Observations	Number of Bankruptcies	% Total Bankruptcies	% Linked to Banks	% Owned by Families
Hong Kong	379	8.30%	7	7%	18%	69%
Indonesia	203	4.44%	4	4%	20%	72%
Japan	2243	49.09%	12	1%	59%	14%
Korea	278	6.08%	27	25%	14%	53%
Malaysia	615	13.46%	21	20%	23%	54%
Philippines	68	1.49%	1	1%	37%	43%
Singapore	222	4.86%	1	1%	14%	43%
Taiwan	203	4.44%	1	1%	9%	43%
Thailand	358	7.84%	32	30%	26%	64%
Middle Income	1,522	33%	85	80%	22%	58%
High Income	3,047	67%	21	20%	47%	25%
East Asia Nine	4,569		106			

Table 2: Summary Statistics of Financial Variables
(Medians)

SALES and ASSETS are measured in US$1,000, using the average exchange rate for 1996. SALDEBT is the ratio of total sales to total debt. LEV is the ratio of total debt to total assets. OISAL is the ratio of operating income (sales less cost of goods sold) and total sales. TOBINQ is the ratio of the sum of the book value of debt and the market value of equity to total assets. GDPG98 is the growth rate of GDP in 1998. Middle Income is the weighted average of Indonesia, Korea, Malaysia, Philippines, and Thailand. High Income is the weighted average of Hong Kong, Japan, Singapore, and Taiwan.

Country	Sales	Assets	SALDEBT	LEV	OISAL	TOBINQ	GDPG98
Hong Kong	237,914.1	134,814.3	2.28	0.21	19.2	1.08	-5.00%
Indonesia	100,361.47	62,088.03	2.17	0.34	34.5	1.09	-15.30%
Japan	488,076.41	457,648.12	3.48	0.27	25.5	1.05	-2.80%
Korea	504,607.88	405,760.37	1.98	0.42	23.2	0.58	-7.00%
Malaysia	63,853.17	44,563.89	2.61	0.22	20.5	1.92	-7.50%
Philippines	149,003.49	71,737.39	2.26	0.19	30.4	1.51	0.20%
Singapore	174,382.75	92,005.63	3.05	0.20	18.7	1.49	0.70%
Taiwan	292,436.36	184,581.82	2.81	0.25	25.4	1.69	4.90%
Thailand	83,980.23	50,760.47	1.52	0.42	28.4	1.05	-8.00%
Middle Income	132,007.88	97,569.53	1.52	0.63	17.30	0.97	-4.79%
High Income	421,070.73	372,659.94	2.16	0.32	25.7	1.34	-2.31%

Table 3: Main Features of the Bankruptcy Codes in East Asia

(1) Country	(2) Code Dates Back to	(3) Timetable To Render a Judgement	(4) Management Stay in Bankruptcy	(5) Automatic Stay	(6) Priority of Secured Creditors	(7) Process of Liquidation	(8) Process of Restructuring
Hong Kong	The 1929 U.K. bankruptcy legislation. The law was amended in 1985 based on the revisions in the U.K. law. Another amendment in 1996 allowed out-of-court settlements.	60 working days after a petition is registered.	No	No	Paid first	Very Expensive, Difficult, Efficient, Slow	Expensive, Easy, Efficient, Quick
Indonesia	Dutch colonial ordinances promulgated in 1906. Amended in August 1998 to establish a special commercial court.	No timetable under old code; 30 working days from the creditor's petition after August 1998.	Yes, old code; No, safer August 1998.	Yes, old code; No after Aug 1998	Costs of proceedings are paid first, followed by claims on wages and secured creditors.	Not Expensive, Difficult, Inefficient, Slow	Expensive, Difficult, Inefficient, Very Slow
Japan	1952 and is loosely based on Chapter 11 in the U.S. Bankruptcy Law.	60 working days	No	Yes	Paid first	Expensive, Easy, Efficient, Quick	Expensive, Difficult, Efficient, Slow
Korea	1984 and is based on the 1978 U.S. Bankruptcy Code. It also has provisions for mediation for settling debts without initiating the full bankruptcy process.	120 working days	No	No	Paid first	Not Expensive, Easy, Efficient, Quick	Expensive, Difficult, Efficient, Quick
Malaysia	The 1985 British bankruptcy law.	180 working days	No	No	Paid first	Expensive, Easy, Efficient, Slow	Expensive, Difficult, Efficient, Slow

Table 3: Main Features of the Bankruptcy Codes in East Asia
(continued)

(1) Country	(2) Code Dates Back to	(3) Timetable To Render a Judgement	(4) Management Stay in Bankruptcy	(5) Automatic Stay	(6) Priority of Secured Creditors	(7) Process of Liquidation	(8) Process of Restructuring
Philippines	1909, with the responsibility taken by the courts. Amended in 1976 to permit debtors to petition the SEC for protection.	No timetable in place.	Yes	Yes	Taxes are paid first, followed by wages, cost of proceedings, and secured creditors.	Not Expensive, Very Difficult, Inefficient, Very Slow	Expensive, Very Difficult, Inefficient, Slow
Singapore	1965 and based on the Australian law of 1961. Amended in 1987 to include a formal court supervised rescue scheme. Further amendments in 1995.	90 working days	No	No	Paid first	Not Expensive, Easy, Efficient, Quick	Not Expensive, Easy, Efficient, Quick
Taiwan	The law drafted by the Kuomintang government in 1935, and amended in 1989 and 1993. As in Korea, is also has a mediation option for out-of-court settlement	90 working days	No	No	Paid first	Not Expensive, Difficult, Inefficient, Slow	Expensive, Difficult, Inefficient, Slow
Thailand	Bankruptcy Act is part of the Commercial Code, developed in 1940 and revised in 1998.	No timetable in place.	No	No	Cost of proceedings are paid first, followed by taxes, wage claims, and secured creditors.	Not Expensive, Easy, Efficient, Slow	Not Expensive, Difficult, Efficient, Quick

Source: World Bank, Asian Development Bank (1999).

Table 4: Legal Origin, Creditor Rights, and Efficacy of the Judicial System

Country	Legal Origin	Creditor Rights	Judicial Efficacy
Hong Kong	Anglo-Saxon	4	6.5
Indonesia	French	0	4.5
Japan	Germanic	3	6.5
Korea	Germanic	3	7.5
Malaysia	Anglo-Saxon	3	5.5
Philippines	French	0	3.0
Singapore	Anglo-Saxon	4	8.0
Taiwan	Germanic	4	4.5
Thailand	Anglo-Saxon	2	6.5

Sources: Legal Origin is taken from La Porta et al (1997). Creditor Rights and Efficacy of Judicial System are constructed by the authors based on data from Asian Development Bank (1999) and reported in Table 3.

The Creditor Rights index is the summation of four dummy variables, where the highest possible score is 4: TIME, equal to 1 if the timetable for rendering a judgement is less than 90 days, 0 otherwise. MANAGER, equal to 1 if incumbent management does not stay during a restructuring or bankruptcy, 0 otherwise. STAY, equal to 1 if there is no Automatic Stay on assets, 0 otherwise. CREDITOR, equal to 1 if secured creditors have the highest priority in payment 0 otherwise.

The Judicial Efficiency index is the average of 8 variables, the ranking (0-2) of expense, ease, efficiency, and speed for RESTRUCTURING and LIQUIDATION. For Example, we assign 0 points if Restructuring is Very Slow, 1 if Slow, 2 if Quick. Similar ranking is constructed for expense, easy and efficiency. The maximum score is 8 for each Restructuring and Liquidation. We take the average of those scores.

Table 5: Comparison between Survivors and Bankrupt Firms

BANKRUPTCIES includes all firms that filed for bankruptcy / creditor protection after the Asian crisis. SURVIVORS includes all firms that did not file for bankruptcy. The variables are as follows: AGE is the number of years publicly traded. Log(SALES) is the log of total sales, measured in US$1,000. SALDEBT is the ratio of total sales to total debt. OISAL is the ratio of operating income (sales less cost of goods sold) and sales. TOBINQ is the ratio of the sum of the book value of debt and the market value of value to total assets. FAMILY is a dummy identifying firms that are owned by a family. BANK is a dummy identifying firms that are owned by a bank or by a family that also owns a bank.

Explanatory Variables	# Obs	Median	Mean	Std. Dev.
Full Sample				
Years Listed	4,569	8.00	7.51	2.02
Log(SALES)	4,569	12.26	1.75	12.30
SALDEBT	4,298	2.82	37.07	50.58
OISAL	3,992	0.26	0.86	0.47
TOBINQ	4,088	1.35	1.61	1.52
FAMILY	4,399	n.a.	0.35	0.48
BANK	4,399	n.a.	0.40	0.49
Bankruptcies				
Years Listed	106	7.00	7.49	2.36
Log(SALES)	106	11.48	1.57	11.65
SALDEBT	105	1.08	2.92	11.51
OISAL	98	0.49	0.82	0.77
TOBINQ	95	1.24	1.44	0.66
FAMILY	105	n.a.	0.43	0.50
BANK	105	n.a.	0.10	0.29
Survivors				
Years Listed	4,463	8.00	7.52	2.01
Log(SALES)	4,463	12.26	1.75	12.31
SALDEBT	4,193	2.88	37.93	51.84
OISAL	3,894	0.26	0.86	0.46
TOBINQ	3,993	1.35	1.62	1.53
FAMILY	4,268	n.a.	0.35	0.48
BANK	4,268	n.a.	0.40	0.49

Table 6: Effect of Firm and Country Characteristics on Bankruptcy

(Logit Estimation)

The table is based on the following equation (with modifications for columns 1-3)

$$Bankruptcy = Intercept + \beta_1 LISTING + \beta_2 LSALES + \beta_3 SALDEBT + \beta_4 OISAL + \beta_5 TOBINQ + \beta_6 FAMILY + \beta_7 BANK + \beta_8 GNPG98 + \beta_9 DUM\text{-}Hi + \beta_{10\text{-}13} \{DUM\text{-}THA, DUM\text{-}KOR, DUM\text{-}IDN, DUM\text{-}MYS\}$$

The dependent variable BANKRUPTCY identifies firms that legally filed for creditor protection in 1997 or 1998 (1=Bankruptcy, 0=Survivors). The independent variables are as follows: LISTING is the number of years publicly traded. LSALES is log of total sales, measured in US$1,000. SALDEBT is the ratio of total sales to total debt. OISAL is the ratio of operating income (sales less cost of goods sold) to sales. TOBINQ is the ratio of the sum of the book value of debt and the market value of equity to total assets. FAMILY is a dummy identifying firms that are owned by a family. BANK is a dummy identifying firms that are owned by a bank or by a family that also owns a bank. DUM-Hi is a dummy indicating the developed countries (Hong Kong, Japan, Singapore, and Taiwan). DUM-THA is a dummy indicating Thailand. DUM-KOR is a dummy indicating Korea. DUM-IDN is a dummy indicating Indonesia. DUM-MYS is a dummy indicating Malaysia. GGNP98 is the real growth rate in 1998. * and ** indicate significance at the 5% and 1% level, respectively.

	(1)		(2)		(3) Without Japan	
Independent Variables	Coefficient	t-Statistics	Coefficient	t-Statistics	Coefficient	t-Statistics
Firm Specific						
INTERCEPT	0.19	0.14	-0.46	-0.44	-0.58	-0.54
LISTING	-0.07	-1.20	-0.06	-1.07	-0.05	-0.89
LSALES	-0.15	-1.78	-0.13	-1.75	-0.10	-1.16
SALDEBT	-0.20**	-3.34	-0.26**	-4.01	-0.17**	-3.02
OISAL	-0.44	-0.97	0.54**	2.58	0.44**	2.04
TOBINQ	-0.61*	-2.43	-0.49**	-2.10	-0.44	-1.96
FAMILY	-1.40**	-3.60	-1.68**	-4.38	-1.49**	-2.84
BANK	-0.56*	-2.31	-0.58*	-2.40	-0.83**	-3.29
Country Specific						
GNPG98			-0.13**	-4.36	-0.10**	-3.37
DUM-Hi	-0.34	-0.32				
DUM-Thailand	2.75*	2.24				
DUM-Indonesia	0.86	0.66				
DUM-Korea	2.18*	2.01				
DUM-Malaysia	1.41	1.32				
Number of observations:	3,348		3,348		1,378	
% Concordant:	85.7%		84.6%		84.4%	

Table 7: Effect of Legal Origin and Judicial System
(Logit Estimation)

The table is based on the following equation (with modifications for columns 1-3):

$$Bankruptcy = Intercept + \beta_1 LISTING + \beta_2 LSALES + \beta_3 SALDEBT + \beta_4 OISAL + \beta_5 TOBINQ + \beta_6 FAMILY + \beta_7 BANK + \beta_8 GNP98 + \beta_9 FRENCH + \beta_{10} GERMAN + \beta_{11} JAPAN + \beta_{12} JUD + \beta_{13} CREDIT\text{-}JUD$$

The dependent variable BANKRUPTCY identifies firms that legally filed for creditor protection in 1997 or 1998 (1=Bankruptcy, 0=Survivors). The independent variables are as follows: LISTING is the number of years publicly traded. LSALES is log total sales, measured in US$1,000. SALDEBT is the ratio of total sales to total debt. OISAL is the ratio of operating income (sales less cost of goods sold) and sales. TOBINQ is the ratio of the sum of the book value of debt and the market value of equity to total assets. FAMILY is a dummy identifying firms that are owned by a family. BANK is a dummy identifying firms that are owned by a bank or by a family that also owns a bank. GDPG98 is the real growth rate in 1998. FRENCH is a dummy indicating French legal origin (Indonesia, and Philippines). GERMAN is a dummy indicating German legal origin (Japan, Korea, and Taiwan). JAPAN is a dummy for Japan. JUD is an index of the efficiency of the judicial system. CREDIT-JUD is the interaction of JUD and an index of creditor rights. * and ** indicate significance at the 5% and 1% level, respectively.

	(1)		(2)		(3)	
Independent Variables	Coefficient	t-Statistics	Coefficient	t-Statistics	Coefficient	t-Statistics
Firm Specific						
INTERCEPT	-0.94	-0.82	-3.32*	2.59	-1.89	-1.54
LISTING	-0.05	-0.90	-0.04	0.73	-0.02	-0.40
LSALES	-0.18*	-2.02	-0.14	1.78	-0.10	-1.32
SALDEBT	-0.21**	-3.47	-0.22**	3.65	-0.23**	-3.70
OISAL	0.35	1.67	0.27	-1.27	0.50*	2.17
TOBINQ	-0.37	-1.73	-0.25	1.21	-0.32	-1.48
FAMILY	-1.39**	-3.53	-1.40**	3.57	-1.41**	-3.58
BANK	-0.59**	-2.46	-0.67**	2.81	-0.70**	-2.94
Country Specific						
GNPG98	-0.27**	-3.71	-0.13**	2.76	-0.14**	-3.01
FRENCH	-2.66**	-3.14				
GERMAN	0.87*	2.22				
JAPAN	-1.15*	-2.32	-1.14**	-3.27	-1.02*	-2.41
JUD			0.54**	2.75		
CREDIT-JUD					0.05*	2.02
Number of observations:	*3,348*		3,348		*3,348*	
% Concordant:	*85.7%*		84.6%		84.4%	