Financial Distress and Bank Lending Relationships

Sandeep Dahiya[*]
Anthony Saunders[**]
Anand Srinivasan[***]

October 2001

JEL classification: G33; G21
Keywords: Financial Distress; Lending Relationships

[*] McDonough School of Business, Georgetown University, G-04 Old North, Washington DC 20057. Tel. (202) 687 3832, Email: sd@msb.edu
[**] Corresponding author at Stern School of Business, New York University, 44 West 4th Street, New York, NY 10012, Tel: (212) 998 0711, Email: asaunder@stern.nyu.edu
[***]Terry College of Business, University of Georgia, Brooks Hall, Athens, GA 30602-6253. Tel. (706) 369-0867, Email: asriniva@terry.uga.edu
This paper has benefited greatly from suggestions and comments from an anonymous referee as well as from Rick Green (the Editor), Yakov Amihud, Ned Elton, Loretta Mester, David Yermack, Marc Zenner and Kose John. We would like to thank Edward Altman, Mark Carey, and Edith Hotchkiss for providing the data used in this study.

Financial Distress and Bank Lending Relationships

Abstract

One of the most important risks faced by a bank is that of loan default by its borrowers. Existing literature has documented the negative announcement-period returns for lending banks when a big sovereign borrower announces a moratorium on its bank loans. In contrast, little research has been undertaken that analyzes bank shareholder wealth effects when a major corporate borrower declares default and/or bankruptcy. This paper uses a unique data set of bank loans to examine the wealth effects on lead lending banks when their borrowers' suffer financial distress. For the 10-year period from 1987 to 1996, we examine a sample of 71 firms that defaulted on their public debt and a sample of 101 firms that filed for bankruptcy. We find a significant negative wealth effect for the shareholders of the lead lending banks on the announcement of bankruptcy and default by the borrowers of their bank. We also find that the banks with relatively higher exposure to the distressed firms have larger negative announcement-period returns, although individual loan details are not public knowledge. Thus, the market appears to discriminate among lenders in a way not inconsistent with a correct inference of individual borrower exposures. We also examine the impact of various loan and bank characteristics on the magnitude of announcement returns. We find that the existence of a past lending relationship with the distressed firm results in larger wealth declines for the bank shareholders. Finally, we find that financial distress also has a significantly negative effect on borrower's returns.

1. Introduction

Recent banking literature has focused increased attention on the costs and benefits of banking relationships (see Boot, 2000). In particular, existing empirical work has been primarily aimed at establishing and estimating the value of the relationships that borrowers have established with their bankers. Leading examples include James (1987) (Excess returns to borrowers on the news the announcement of new bank loans), and Peterson and Rajan (1994) (the role of the length of a relationship in determining the availability and pricing of bank credit). While there is considerable evidence of value creation for the borrower, on initiation or renewal of a banking relationship, there is a paucity of studies that attempt to measure the value of such relationships for lending banks. Peterson and Rajan (1995) and Berlin and Mester (1998) suggest that banks have incentives to smooth out the interest charged on loans if they have repeated transactions with a borrower over a long period of time. This suggests that banks find it valuable to invest in and maintain long-term customer relationships. Nevertheless, the costs of such relationships to a bank are often ignored. In this paper we attempt to fill this gap in the literature by examining the impact of a borrower's distress on its lead bank. The financial distress of a borrower should reduce the value of any banking relationship. Specifically, we analyze the bank's share price reaction when one of a bank's corporate borrowers enters financial distress as reflected by a bond default and/or bankruptcy.

There are strong arguments for treating a borrower's distress announcement as a "*No News",* (or low cost) event for a bank. First, prudent banking norms limit the losses that a bank might suffer if any single borrower is unable to repay its debt, typically a bank loan is secured and is senior debt.[1] Thus, the recovery rate on

[1] Regulation also restricts loan exposures to a borrower to a maximum of 15% of the capital of the bank.

defaulted debt is likely to be fairly high for bank loans.[2] Secondly, banks are considered "insiders " with significant informational advantages. This implies that banks are likely to be better informed about the financial status of their borrowers and thus will be able to take steps to reduce their loan exposures before the news of a borrower's distress becomes public information. Lastly, in many instances news of a borrower's distress is preceded by other public announcements such as a decline in its earnings, a cut in its dividends, etc., which may diminish the informational content of news regarding financial distress.

These effects have to be weighed against the hypothesis that a borrower's financial distress announcement is an *"Adverse News"* event that has a negative impact on a bank's share price. First, there is a direct effect due to the expected losses on account of the borrower's distress on the bank. This effect should be related to the exposure of the bank to the borrower. Second, there may also be indirect effects of the borrower distress on the bank's stock price. Such indirect effects may arise from many sources. For example, multiplier or contagion effects may exist if the distress of one borrower is correlated across an industry (or region). That is, a firm's distress may convey information about an increased likelihood of distress of other borrowers in the same industry to which the bank may be exposed. In addition, the news of a corporate borrower's distress may be construed as a signal of poor loan initiation and management skills, with an accompanied loss of a bank's reputational values.[3] Lastly, bank regulators scrutinize books of the banks to ensure that they meet the

[2] Weiss (1990) studies 37 publicly traded firms and finds that secured creditors claims are claims are paid in full in most cases. To the extent that bank loans are secured, this suggests a fairly high recovery rate. Franks and Torous (1994), using a sample from 1983 –1989 find that bank loans have recovery rates of about 85%. However, more recent evidence by Gupton, Gates and Carey (2000) suggests a recovery rate of between 50-65% for bank loss in the event of default.

[3] The loss of reputational value may also be reflected in the unwillingness of other banks to enter into new loan syndications arranged by the lead bank. For example, Smith (1992) reports that Salomon Brothers lost over a third of it market value on account of the treasury auction scandal in 1991. This loss of value which amounted to over $1.5 billion was well above the fines and other costs arising from expected legal and regulatory sanctions.

banking requirements of regulatory capital. A default or bankruptcy event is likely to increase this scrutiny and therefore will act as an additional "regulatory" tax on the bank.[4]

The central hypothesis explored in this paper is whether the news of a corporate borrower's distress has a material economic impact on its lead bank. A group of studies have examined the impact on the lending banks' share price of the announcement of debt moratoriums by sovereign borrowers (See for example Smirlock and Kaufold (1987), Lamy, Marr and Thompson (1987), Musumeci and Sinkey (1990), and Grammatikos and Saunders (1990)). However, the evidence from these studies is mixed with majority of them finding negative reactions that are heterogeneous across banks.

Kracaw and Zenner (1996) examine bank share price reactions to nine highly leveraged firms that became financially distressed. They find a negative share price reaction for these banks, but one that was not statistically significant. However these findings were for a very small sample of firms involved in highly leveraged transactions such as LBOs or recapitalizations. In contrast our sample consists of a much larger number of firms (many of which are publicly traded) that faced financial distress and/or bankruptcy over a relatively lengthy sample period.

The rest of the paper proceeds as follows. Section 2 describes the sample selection and the data collection procedure. Section 3 describes the methodology. The empirical results and their interpretation are presented in section 4. We conclude with a brief summary of main findings in Section 5.

[4] Also, Benveniste, Singh and Wilhelm (1993) find that the bankruptcy of Drexel Burnham resulted in positive returns for rival banks likely to benefit from this event.

2. Sample Selection and Data Collection

We define a firm to be financially distressed if it has insufficient cash flows to meet the payments on its debt.[5] This paper examines two types of financial distress announcements: (1) the default on a firm's public debt, and (2) the filing by a firm for bankruptcy protection under Chapter 11. Gilson, John and Lang (1990) (henceforth, GJL) and others use a broader set of events to define distress. In particular, while defaults constitute over 50% of the first event of distress in GJL, they also use reports of restructuring of debt; where the firm's creditors suffer some impairment on their claim either on account of an exchange of debt into equity or convertible securities, required interest payments or principal are reduced or maturity is extended. Such restructuring is termed as distressed restructuring. Towards the end of this paper, we study the effect such distress events on our results. For the most part, our sample consists of distress events that occur subsequent to the sample period in GJL. Also, the borrower does not have to be a publicly traded firm to enter into our sample, rather the only requirement is that the borrower have a bank loan outstanding.[6]

The impact of each of these announcements on a borrower's lead bank is estimated by calculating the abnormal returns for the bank's shareholders around the date of the relevant announcement. The study analyzes 71 cases of default and 101 cases of bankruptcy filing for a 10-year period 1987 to 1996. We study the two events separately by constructing a sample of lead banks that had loans outstanding to firms on the date of their default and another sample of lead banks that had loans outstanding to firms on the date of their Chapter 11 filings. We also create a sub-sample of firms that are common to both samples. For this latter sub-sample, we first examine the impact of default and then that of subsequent bankruptcy. This allows us

[5] Wruck (1990), Gilson, John, and Lang (1990), Franks and Torous (1994), Tashijian, Lease and McConnell (1996) and Andrade and Kaplan (1997) study the effect of distress on the borrowing firm.
[6] Tashijian, ,Lease and McConnell (1996) also do not require presence of public stock or private debt. However, they focus only on prepackaged bankruptcies.

to control for the partial anticipation of bankruptcy induced by an earlier bond default. We repeat the same test for the sub-sample of distressed firms that either did not have any public debt outstanding or for whom the default and the bankruptcy events occurred simultaneously. This allows us to examine the informational content of a bankruptcy announcement without contamination due to a prior signal such as default.

In order to construct the sample of distressed firm announcement dates and the lending relationships of these firms, the following data were employed: (1) a comprehensive list of firms that defaulted on their public debt and the date of the default over the period 1987-1996; (2) a list of firms that filed for Chapter 11 and their filing date over the period 1987-1996; (3) details of bank loans made to distressed firms that were outstanding at the time of their default and/or bankruptcy.

The primary source for the list of defaults was Altman and Kishore (1996)[7], while the primary source for the bankruptcies was Hotchkiss (1995).[8] These lists were crosschecked and supplemented with information from a variety of other sources. These included *The Bankruptcy Almanac*, published by New Generation Research, and various news sources such as the Dow Jones News Retrieval Services and the Lexis-Nexis bankruptcy library.

We used data from the Loan Pricing Corporation Database (LPC)[9] to get details of loan transactions and the nature of the relationship between distressed firms and their banks. The LPC database contains detailed transaction level information related to loan amount, start and expiration dates, terms and purpose of the loans, the name of the lead bank(s) and the syndicate's size. These details are especially advantageous in examining the impact of a borrower's distress on its lead bank. First, it allows for the

[7] The data used in 1996 study has been updated by Professor Altman and covers the period examined in this paper. We used this updated data provided by Professor Altman.
[8] We would like to thank Edith Hotchkiss and Ed Altman for sharing their data.
[9] We would like to thank Mark Carey for providing help with the LPC data.

identification of the lead bank(s) of a distressed firm. Secondly, the details of the loan transactions provide a rich cross-section of loan attributes. Lastly, the start and the maturity dates allow us to determine whether a loan was outstanding at the time of distress.

The sample selection procedure was as follows: the names of the firms that defaulted on their bonds or filed for bankruptcy were hand matched with the list of loan borrowers in the LPC database. This allowed us to determine for which of these firms loan data were available.[10] This step yielded a list of 971 loan transactions involving borrowers that subsequently defaulted or filed for bankruptcy. This sample was further narrowed down to include only those transactions which were entered into before the date of the distress announcement and that had a contractual maturity date later than the date of the distress announcement. This step insured that we only included those transactions that could reasonably be assumed to be outstanding at the onset of financial distress. Using the default date as the date for distress we obtained a sample of 174 transactions that could be assumed to be outstanding on the date of default. A similar procedure using the date of Chapter 11 filing as the distress date yielded a sample of 272 transactions. Next we located the lead bank for these transactions by looking and searching for the words “arranger," "administrative agent," "agent," or "lead bank” in the lender role definition in the LPC databse.[11] Finally, we used the names of all the commercial banks listed on CRSP in conjunction with the list of lead banks for the sample of firms that defaulted or filed

[10] The LPC database lists each credit facility as a separate record field. Thus a single borrower may have multiple credit facilities from the same bank or a single credit facility that is syndicated among multiple banks or multiple facilities syndicated among multiple banks.

[11] The LPC database lists the role of the lead syndicate member as arrangers, co-arrangers, lead bank, agents, co-agents, documentation/credit agent or lead manager. We looked for any of these role levels within a syndicate to assign the lead bank role. All the credit facilities included in the sample had a clear lead bank as all syndicate members other than the lead bank were defined as participants in the credit facility.

for Chapter 11.[12] This step eliminated the transactions that had a foreign bank or a non-bank finance company as the lead lender.

The final sample consists of 123 transactions involving 71 borrowers that subsequently defaulted on their public debt and 174 transactions involving 101 borrowers that subsequently filed for bankruptcy. The 71 announcements of default represent 99 announcement events for the lead banks while the 101 announcements of bankruptcy represent 130 announcement events. The higher number of bank events compared to the number of firms in distress occurs because some of the firms had multiple lead banks.

Sources of data on bank and borrower characteristics for the distressed borrowers' sample included the LPC Database, Moody's manuals, and BANK COMPUSTAT. The size of the loan transaction, the purpose and terms of the deal, and the syndicate size were taken from the LPC database. The balance sheet data for lead banks, where available, was obtained from BANK COMPUSTAT data tapes. Where the information was not available, it was supplemented by information taken from Moody's bank manuals. The information on bank holding companies was obtained from Moody's bank manuals.

In Panel A of Table 1 we provide the distribution of the sample by the year of the bankruptcy and default announcement. Most of the financial distress announcements are clustered in the years 1990-1993. This is in line with the timing of the economic recession of the 1990-1991 period, when more cases of financial distress are to be expected. More than seventy percent of the defaults and bankruptcies occur in the 1990-1993 period.

[12] A number of loans were made by the subsidiaries of the main bank holding company. For this study we use the stock price reaction of the bank holding company. Also some of the banks merged or were taken over after the loan was made but before the company filed for bankruptcy. In those instances the announcement effect of bankruptcy is measured on the merged/acquirer bank.

In panel B we document the characteristics of the lender banks. There are 22 different banks for the sample of 71 firms that defaulted on their public debt (36 banks for 101 firms that filed for Chapter 11). We also report the mean ratio of total transaction size to the equity of the lead bank in the year before the date of distress. This ratio is 19.02% (median 6.08%) for the banks of defaulting firms (mean 12.1%, median 2.7% for the banks of firms filing for Chapter 11). The absolute level of this ratio should be interpreted with care as it represents the ratio of the *aggregate transaction size* to the *lead bank's equity*. This is not the bank's actual exposure, as that would depend on the *share of the transaction size* retained by the lead bank since most of these transactions are syndicated among other participating banks and non-bank finance companies. Also, each transaction is made up of multiple facilities, not all of which may be fully drawn-down. While this ratio is not an exact estimate of the bank's exposure to the distressed firm, it is a proxy for the upper limit of a bank's exposure.[13]

In Panel C we provide the descriptive statistics at the aggregate loan transaction level. Our full sample consists of 123 transactions involving firms that defaulted and 174 transactions involving firms that filed for Chapter 11. All of these loan transactions had a contractual life that overlapped the date of default/bankruptcy by the borrowing firm. The mean (median) transaction size of $415 million ($195 million) for the default sample is larger than the mean (median) transaction size of $280 million ($260 million) for the bankruptcy sample. We also partition our sample by the stated purpose of the transaction. The large proportion of the lending is for the purposes of leveraged buyouts (LBOs), recapitalizations, takeovers and working capital. Although takeover/acquisition, leveraged buyouts and recapitalizations

[13] Indeed, a bank faces reputational losses, in addition to the size of loan retained, should a syndicate led by that bank make losses. The mean ratio of loan loss reserves to the total assets of the lead banks for the year before the year of distress is 2.3% (median 2.05%) for the sample of lead banks of defaulting firms, and 2.1% (2.05%) for the banks of bankrupt firms.

account for less than one-fourth of the number of transactions, they account for over 60% of the total dollar value. These transactions are also fairly large. For example, in case of the sample of firms that declared bankruptcy the mean transaction size for takeover/acquisition is $912 million (median $212 million), for LBOs $380 million ($357 million), and for recapitalizations $816 million ($287 million). In comparable studies of LBOs and recapitalizations, Kaplan (1989) has a mean (median) transaction size of $524 million ($254 million); and Muscarella and Vetsuypens (1990) have a mean (median) value of $250 million ($105 million). Relatively large syndicates finance these transactions. The mean size of the syndicate involved in a transaction to finance takeover/acquisitions is 20.8 (median 8), while that for LBOs is 20 (median 8), and for recapitalizations 29 (median 15). The transactions providing the day to day regular financing for working capital and general corporate purposes account for over 45% of the transactions by number but constitute less than 25% of the total dollar value. This is reflected in the mean transaction size for working capital, $128 million (median $ 78 million), and for general corporate purposes, $157 million ($50 million). The mean syndicate size for working capital is 7 (median 2), and 7.1 (median 4) for general corporate purposes.

Additional information about the structure of the sample of transactions is presented in Panel D of Table 2. For the sample of firms filing for Chapter 11, on average the borrower paid a premium of 1.89% (median 2%) over LIBOR and 1.16% (1.25%) over the U.S. prime rate. Commitment fees on the unused portion of the lending facility are 0.43% and the up-front fees are 1%. The statistics for the sample of defaulting firms are similar. The loan rates are lower for our sample compared to those reported by Kracaw and Zenner (1996) for their sample of nine highly leveraged transactions.

3. Test Methodology

The basic null hypothesis is:

H_0 : The announcement of a firm's financial distress is a *"No News"* event for the firm's lead bank(s).

The alternative hypothesis is:

H_1: The announcement of a firm's financial distress is an *"Adverse News"* event for the firm's lead bank(s).

A simple way to examine the reaction of a bank's stock price to the announcement of a borrower's financial distress is to employ a standard event study methodology to study the movements in the bank's stock return around the date of the announcement of financial distress by the borrower. However, the use of the default announcement or Chapter 11 filing as the study event poses some problems. These announcements are usually preceded by many other announcements and news stories that foreshadow the subsequent announcement of default and/or bankruptcy. Thus, the traditional narrow event window of 2 or 3 days is unlikely to capture the entire stock price reaction of a bank lender. A typical chronology of the release of various distress-related announcements is illustrated by Figure 2 below.

Figure 1

1	2	3	4
Dividend cuts, earnings decline	Default on debt, Credit rating change	Chapter 11 filing	Plan of reorganization is confirmed

The release of relevant information prior to the actual event is well illustrated by the chronology of news items that appeared before the default and bankruptcy of Columbia Gas Systems, which suffered a long period of financial deterioration before finally filing for bankruptcy:

June 20, 1991 - Columbia Gas Systems suspends dividend and calls for renegotiations with its gas suppliers. The firm said that potential losses on existing contracts exceed $1.1 billion. (Wall Street Journal)

June 21, 1991 - Columbia Gas Systems defaulted on $15 million of commercial paper and other short-term notes. (Wall Street Journal)

June 25, 1991 - Columbia Gas Systems defaulted on additional $10 million of short term notes. (Wall Street Journal)

July 9, 1991 - Columbia Gas Systems defaulted on $14 million of commercial paper. (Wall Street Journal)

July 22, 1991 - Columbia Gas Systems defaulted on $15 million of short-term debt. (Wall Street Journal)

August 1, 1991 - Columbia Gas Systems files for bankruptcy. (Wall Street Journal)

The long drawn out nature of the distress process makes the use of the standard 2 or 3 day event window unsuitable for this study. In order to fully capture the impact of the deterioration in the bank-borrower relationship more usefully we use four different event windows: 11 days, 7 days, 5 days and the traditional 3 days to measure the market's reaction to the news of a borrower's of default and bankruptcy on its lead bank. (We also examined event windows of 15 and 21 days, the results are essentially identical and are not reported).

We calculate the announcement abnormal returns for banks using the market model methodology as detailed in Mikkelson and Partch (1986), and James (1987). The abnormal returns are computed using the market model. The parameters of the market model are estimated by regressing the firm's common stock returns for the period 200 days before the event date to 50 days before the event date on the rate of return on CRSP's dividend inclusive, equal-weighted index for NYSE/AMEX/Nasdaq stocks. The abnormal return is computed as the difference

between the observed return and the estimated return from the market model. Cumulative abnormal returns (CAR) are the sum of abnormal returns for the days in the relevant event window. Tests of significance are based on standardized abnormal returns and CAR's. In the last section of the paper, we also examine the effect of distress on the borrower using an event study in a manner similar to GJL and others. We use the equally weighted index as the benchmark and a similar estimation period for the borrowing firms.

4. Empirical Results

4.1 Stock Price Response to the news of financial distress

If the announcement of its borrowers' financial distress is a "No News" event for the lead bank we do not expect to find any abnormal movement in the stock price of the bank around the date of the announcement. However, if the distress is an "Adverse News" event, then negative wealth effects for the lead bank's shareholders are expected. The results presented below are largely consistent with the "Adverse News" hypothesis.

Specifically Table 2, Panel A, presents the average stock price response of the lead banks to the announcements of public debt defaults of their borrowers. For the 11 day period starting 8 days before the news of default and lasting until 2 days after, the average cumulative abnormal return (ACAR) is -3.77%, which is significant at the 1% level (*t* - statistic = -5.387). Narrowing the event window to 7 days and further to 5 days leaves the results unchanged. For the traditional event window of 3 days (-1, 0, +1) the ACAR is -0.86%, which is still significant at the 5% level (*t* - statistic = -2.45). Thus, the news of borrowers' defaulting on their public debt is received as significant adverse news by the shareholders of the lead lending banks.

In Table 2, panel B, we repeat the event study for a different sample of firms for whom the onset of financial distress is proxied by the date of their filing for Chapter 11 bankruptcy. The direction of the results is similar to the default sample -- again the announcement has a negative effect on the lead bank's share price. However, the scale of the stock price reaction is much lower on the news of bankruptcy than on bond default. The 11 day ACAR is -1.83% which is significant at the 1% level (*t* -statistic = -3.30). This is roughly half of the size of the price reaction that banks suffer on the news of default. (The results are similar for 7-day and 5-day windows). For the 3-day window the ACAR is negative but statistically insignificant.[14]

Overall the tests for the aggregate sample of banks provide strong evidence for the "Adverse News" hypothesis especially on the announcement of bond defaults. However, there is considerable variation in the size of credit transactions and the size of the lending banks. Although the details of individual bank exposures are not public knowledge, an informationally efficient market would react more severely to the distress announcement of a borrower in which the lead bank had a relatively high exposure compared to a bank with a relatively low exposure. We examine the impact of exposure levels on the magnitude of the lead bank's stock price reaction next.

4.2 Stock Price Response of High vs. Low Exposed Banks

If the individual share of each bank in each loan transaction were known we would be able to determine the exact dollar amount that the lead bank has directly exposed to the distressed firm. Unfortunately, we only have data on the aggregate

[14] We also performed a non-parametric Wilcoxon Signed Rank test for differences between the abnormal returns. This test has two principal advantages over parametric tests like the t-test and the z-test; (1) It uses only the rank of the returns ordered in terms of the magnitude and sign and does not use the magnitude of the return. Therefore, it is robust to the presence of outliers and (2) It does not make assumptions about the distribution of abnormal returns. If the two sets of data are identically distributed, then the sum of ranks of the two sets should be close to each other. The difference in the sum of ranks can be used to test for differences in the sample mean of the two data sets. In virtually all cases (See Table 2, column5), the direction and the level of statistical significance of the results of this test are consistent with those obtained in the t –tests.

size of each loan transaction. In order to differentiate the banks with high exposure from those with low exposure we calculate the following exposure ratio:

$$Exp_j = \frac{\sum_{i=1}^{T} Transacamount_{ij}^{k}}{Bankcap_j} \qquad (1)$$

where for each borrower *k:*

$Transacamount_{ij}$ is the dollar amount of transaction *i* for which bank *j* was the lead bank, *T* is the total number of loan transactions that lead bank j has outstanding at the time of distress to the borrower, and $Bankcap_j$ is the capital of the bank *j* as reported for the year before the year of borrower's distress.

Thus Exp_j provides a proxy for the bank's exposure to the distressed borrower. We divide the default sample into the two subsamples based on this ratio: banks with exposure ratios higher than the median of 6.84% and banks with exposure levels lower than the median. This is repeated for the bankruptcy sample (median exposure ratio 2.78%). In Table 3 we report the results of the event study for these subsamples. We find that the price reaction is much more negative and significant for the subsample of highly exposed banks. This holds true for both the news of a bond default as well as for bankruptcy. Panel A compares the ACAR for the high exposure banks and the low exposure banks around the date of default by the bank's borrower. The 11-day ACAR is -5.48% for the high exposure banks, which is approximately twice as large as the ACAR of -2.09 % for the low exposure banks. The ACAR is negative and statistically significant for the high exposure banks across all event windows, yet while it is also negative for the low exposure banks it is not statistically significant. We also test whether the difference between the ACAR for the two groups is statistically significant. The last column in panel A reports the *t* - statistics for the difference between high exposure and low exposure banks. The differences between the two groups are significant for all event windows.

Panel B reports the same results for the price reaction around the date of Chapter 11 filings. The results are similar to the ones reported in Panel A. The 11-day ACAR for the high exposure banks is -2.95% (*t* - statistic = -3.49). Low exposure banks, on the other hand, have an ACAR of -0.72% (*t* - statistic = -1.17). Varying the length of the event window to 7, 5 or 3 days leaves the results largely unchanged as the high exposure banks suffer a price reaction much larger than that for the banks with low exposure. However, the statistical significance of the difference between the two groups is much weaker. As reported in the last column, the difference between the two groups is only significant for the 11-day window.

Finally, some of the firms in our bankruptcy sample are included in the sample of defaulting firms. This may diminish the true effect of the bankruptcy announcement for these firms, as the news of their bankruptcy may have already been anticipated by the news of their bond default. Thus the chronological order of various distress announcements may have an important bearing on how the market reacts to news regarding distressed borrowers. We investigate this in the next section.

4.3 Reaction to the news of default prior to bankruptcy

The sample of borrowing firms filing for bankruptcy can be divided into two subsamples depending on whether or not there was a bond default prior to the bankruptcy. We construct a subsample of 33 firms that defaulted on their public debt at least 7 days prior to filing for bankruptcy. The remaining 68 firms either did not have any public debt outstanding, or their default and bankruptcy announcements occurred on the same day.

For the subsample of 33 firms the announcement of a Chapter 11 filing would be partially anticipated because of their prior default on public debt. Thus, the expectation of bankruptcy would already have been incorporated (in part) in the bank's share price by the time bankruptcy was actually announced. For the subsample of 68 firms, however, the news of the bankruptcy would still have

significant informational content. This is supported by the results reported in Table 4. Panel A presents the ACAR of the banks for the first subsample (33 firms) on the announcement of default, while Panel B reports the ACAR results for the same 33 firms in the event of their subsequent bankruptcy filing. As reported in Panel A, the announcement returns are -2.81% for the 11 day window on the news of the bond default, which is significant at the 1% level (*t* - statistic = -3.011). The results are directionally similar for the 7, 5 and 3-day windows. However, when these same firms declare bankruptcy (Panel B), the ACAR for the lead banks is only -0.19 % for the 11 days around the date of their Chapter 11 filing, failing to reject the null hypothesis (*t*- statistic 0.358). The results are similar for event windows of shorter length. These results imply that prior news of a bond default significantly reduces the informational content (for banks) of subsequent bankruptcy announcements by their borrowers.

In Panel C we report the results for the subsample of bankrupt firms that either did not have any public debt, or for whom default and the bankruptcy occurred simultaneously. For these firms, there is no default signal of distress prior to their declaration of bankruptcy. In the absence of any prior default news we find a bankruptcy announcement return for banks of -2.89% for the 11-day window, which is significant at the 1% level (*t* - statistic = -4.267). The results are robust to different lengths of the event window which continue to be negative and significant. Thus, when there is no prior bond default, the bankruptcy announcement of a firm has a significantly negative impact on the market value of its lead lending bank.[15]

[15] It should be noted that once news of a prior default becomes public, the reputational losses as well as the possibility of additional regulatory scrutiny are realized. Such losses could very well incorporate the possibility of a bankruptcy and subsequent losses in that process. Even though the recovery rates are high, there is still a large amount of uncertainty in the amount to be recovered. Using recent evidence, Gupton, Gates and Carty (2000) suggest that mean bank loan value in default is 69.5% for senior secured debt and 52.1% for senior unsecured debt. However, loss given default values have a large variance with the lowest 10^{th} percentiles of recoveries at 39.2% for senior secured debt and 5.8% for senior unsecured debt.

4.4 Multivariate Tests

Our results so far show that the shareholders of a lead bank suffer a wealth decline when there is *unanticipated* news of financial distress by their major borrowers. In this section, we seek to confirm our univariate findings and to investigate other factors that may potentially affect bank abnormal returns around distress announcements. Specifically, there is considerable variation in the characteristics of the banks and the loans in our sample, as well as in macroeconomic conditions, which may have had an impact on how the market reacted to news of a borrower's distress. To examine the impact of these factors on announcement period returns for banks lending to distressed firms we estimate a regression model that takes the following form:

$$CAR_j = \beta_0 + \beta_1 \text{ RELATIONSHIP}_j + \beta_2 \text{ EXPOSURE}_j + \beta_2 \text{ RECESSION}_j + \Sigma\beta_k \text{ CNTRLVAR}_{jk} \quad (2)$$

where:

CAR_j: the dependent variable is the 11-day cumulative abnormal return for bank *j* around the date of bankruptcy (or bond default) by the bank's borrower. (For the borrowers that are common to the default and bankruptcy samples the earlier of the two events is used.)

$RELATIONSHIP_j$: a dummy variable that takes on the value one if bank *j* had been the lead bank in lending (making previous loans) to the distressed borrower before its default/bankruptcy. This variable captures the existence of a prior bank-borrower relationship.

$EXPOSURE_j$: a measure of the exposure of bank *j* to the distressed borrower as defined by equation 1 earlier.

RECESSION$_j$: a dummy variable that takes the value of one if the distress occurs between the dates of July 1, 1990 and March 31, 1991. (The peak to trough business contraction dates as defined by the National Bureau for Economic Research.)

CNTRLVAR$_{jk}$: a set of control variables for loan and bank characteristics. These include the following:

LOAN LOSS RESERVE: The loan loss reserve of the bank divided by the bank capital in the year prior to the distress date.

LOAN LOSS RESERVE DIFFERENCE: The difference of the bank's loan loss reserves for the year of the distress date and its loan loss reserves for the year prior to the distress date divided by the bank capital in the year prior to distress.

BANKSIZE: The natural log of the total assets of the bank as reported for the year prior to the date of distress.

LBO: A dummy variable that takes the value of one if the loan purpose was for a leveraged buyout.

CREDIT SPREAD: The spread of the loan over LIBOR at the time of loan origination.

MULTIPLE BANK DUMMY: Set to 1 when the borrower involved in the distress event has multiple lead banks.

PRIOR DISTRESS DUMMY: Set to 1 when the first event of distress was not a default on public debt or a bankruptcy (e.g. it was a debt restructuring) and we can identify the exact date.[16]

INDUSTRY: A set of dummy variables to control for the borrower's industry.

[16] See the earlier papers of Gilson, John and Lang (1990) for a definition of distress that includes debt restructuring.

4.5 Regression Results

Higher loan exposures should put a lending bank at risk of losing a greater proportion of its capital base, and thus risk insolvency or closure if the borrower is unable to repay its loans. This implies a negative relationship between announcement period returns and the bank's degree of exposure. This is indeed the case in all four models presented in Table 5.

As discussed in Section 1, if the bank had been involved with the borrower in a lending relationship prior to its distress, the relationship is likely to have been of value and the dissolution of such a relationship is likely to be costly to the bank.[17]

Thus, we expect that banks, which had a prior lending relationship with a distressed borrower, will be more adversely impacted by the onset of distress. To measure this effect, an indicator variable, RELATIONSHIP, is used which equals one if the bank has been involved in a lending relationship with the distressed firm prior to its distress or bankruptcy.

The regression results reported in Table 5 A provide strong support for the argument that the prior relationships are valuable distress of relationship firms is relatively more costly for banks. Specifically, the coefficient for the past relationship variable (RELATIONSHIP) is negative and significant at the 1% level – see models 2-3 Table 5 A.

One possible concern about these relationship results is that they are driven by a few transactions that have large negative returns. Out of the total sample of 156 transactions, 68 transactions involved borrowers and banks that had prior relationships. These latter 68 transactions involved 62 different firms and 13 different banks. Moreover, the ACAR (recorded over 11 days) for this sub-sample with prior

[17] Slovin, Shushka and Polonchek (1993) document significant value loss for the *borrowers* of a *bank* (Continental Illinois) when it was facing distress. Others such as Lummer and McConnell (1989) find that loan renewals result in positive abnormal returns for borrowers. Our study examines this impact in the other direction i.e. the effect of a borrower's distress on the lender.

relationships was –5.04% and that for the sub-sample without prior relationships was –0.81%. The difference in these abnormal returns was significantly different from zero at the 1% level of significance. Consequently, both the univariate and multivariate tests suggest that the existence of a prior relationship is important in impacting the scale of the valuation effect on a bank with loans outstanding to a distressed borrower.[18]

The RECESSION dummy variable controls for the different macroeconomic conditions prevailing at the time of the announcement of distress. Our sample period, 1987 to 1996, includes the 1990-1991 economic recession. The negative and significant coefficient for the recession dummy variable is consistent with the view that the news of financial distress has a larger negative impact on the lending banks during a period of economic contraction.[19]

Next, in Table 5B, we investigate the effect of other bank and firm specific variables on the abnormal returns of the leading bank. In particular, our previous univariate and multivariate results suggest that one source of the loss to banks is the direct loss arising from the size of their loan exposure to the distressed borrower. To investigate this effect further, we use data on loan loss reserves in the regression. These are reserves that banks are required to set aside against expected or anticipated future losses on their loan portfolio. Thus, anticipation of a distress event should result in an increase of the banks' loan loss reserve ratio in the period prior to distress. If a bank has built up sufficient reserves it is less likely to fail as a result of borrower defaults.[20] As such, we should find that banks that have built up loan loss reserves

[18] The studies by Lummer and McConnell (1989) used only existence of a prior relationship in evaluating the stock price reaction. Other authors such as Peterson and Rajan (1994) and Berger and Udell (1995) also use the duration of the relationship as a measure of the strength of the relationship. Unfortunately, the LPC data is censored, starting only from the beginning of 1987 and therefore we cannot measure the duration of the relationship.

[19] One possible reason for this is that recovery rates, including the value of collateral such as real estate, is likely to be lower in recessions and contractions.

[20] Loan loss reserves can be viewed as a first line of defense against losses (i.e. expected losses) while capital reserves can be viewed as the second line of defense, i.e., against unexpected losses.

prior to default should be less negatively impacted by news of distress events. [21] Model 1 in Table 5 B tests this possible relationship. As can be seen, the loan loss reserve variable is positive but insignificant. In model 2, we test if additions to the reserve has any impact on the abnormal returns. Other authors such as Grammatikos and Saunders (1990) found that additions to the loan loss reserve by banks was viewed favorably by the market. This variable is also found to be positive but insignificant. Lastly, we interact the difference in loan loss reserves with the exposure variable. We find that this variable has a positive and significant effect suggesting that banks that have larger exposures and increase their loan loss reserves in anticipation of financial distress of one of their borrowers tend to have less negative abnormal returns than banks that do not.[22]

We also controlled for the LBO loans and the borrower's industry by the inclusion of a set of dummy variables. Except for the LBO dummy, which was significantly positive in one model, none of these control variables had regression coefficients that were statistically significant in Tables 5A and B.

4.6 Robustness checks

As mentioned earlier, our definition of distress does is somewhat more restrictive than that used in the study by GJL. To test the robustness of our findings, we collected data on the first date of distressed restructuring of the borrowers in our sample (see Section 1 for a definition of a distressed restructuring). We go back two years prior the first date of distress as defined in this study (which is a public default or bankruptcy) to find a date when (or if) the borrower attempted to restructure its debt. We used the Lexis Nexis libraries on public news and bankruptcy for this search. We focused only on those restructuring events where it was clear from the

[21] We thank the referee for suggesting this.

[22] One complicating factor is that banks appear to use the loan loss reserve not only as a fund to insulate against future losses but also to smooth earnings. See Collins, Shackelford and Wahlen (1995), Beaver and Engel (1996) and Wall and Koch (2000) for evidence on such smoothing.

related news story that the attempted restructuring of debt was due to financial difficulties. In several cases, the restructuring event coincided with the default or bankruptcy date. In those cases where the company attempted to restructure its debt before default or bankruptcy (and we can identify the exact date when this happened), we set the PRIOR DISTRESS DUMMY to 1 in the multivariate tests in Table 5B Model 4, otherwise the dummy is given a value of zero. As can be seen while the sign of the dummy is negative, it is not statistically significant in our sample.

We control for bank-specific characteristics with the variables BANKSIZE. On one hand one might expect the importance of any individual corporate loan default to be relatively small because larger banks are likely to be more diversified. On the other hand, the borrowers of larger banks tend to be bigger and more widely followed companies. The distress announcement of such a borrower may cause a larger negative reaction for a larger bank as the market revises its assessment of the quality of the bank's overall loan portfolio and efficiency of the bank as a "delegated monitor" (see for example James (1987)). As can be seen from Table 5B model 4, the bank size variable was found to be insignificant.

The coefficient on the CREDIT SPREAD variable (the spread on the loan over LIBOR at the time of loan origination) should proxy for the bank's ex-ante expectation of the borrower's risk before the distress event. As can be seen, inclusion of the credit spread on the loan made by the bank prior to distress had no significant explanatory effect on the size of the lending bank's CAR at the time of distress.

A potential problem in our multivariate test results is that each event of distress for a given borrower may result in multiple events in our regression if the given borrower had multiple lead banks. To control for this, we created a MULTIPLE BANK DUMMY for those distress events where the borrower had multiple lead banks (dummy equal to 1) and those where it had a single lead bank (dummy equal to 0). As can be seen from Table 5B, model 4, this dummy appears to be insignificant.

Indeed, univariate tests of the difference in ACARs between these two categories (i.e. multiple bank lending versus single bank lending) indicated that these two sets of ACAR's were not statistically different from each other.[23]

Finally, our findings, while supportive of the adverse information hypothesis, may be confounded, in part, by some other event that negatively affects both the value of the bank and the borrowing firm, but has nothing (directly) to do with the distress itself. A good example of such confounding events is an increase in prime lending rates (see Park, Nabar and Saunders (1993) for evidence of the effect of prime rate changes on bank returns). To account for this, we collected data on prime rate increases that occurred during the 11 day event window around distress announcements. Excluding events contaminated by prime rate increases had no effect on our results.[24]

4.7 Borrower returns

Thus far, we have examined the returns to the borrower's lead banks around the distress dates. A natural question would be to examine the effect of distress on the borrower itself. If adverse information about the borrower is indeed the cause of the negative return experienced by the bank, the borrower should also experience negative abnormal returns during the event window period. We estimate borrower returns using the methods suggested by GJL using an estimation period from 250 days before the announcement date to 50 days before the announcement date. Since a number of the companies in our sample were private and many had been delisted

[23] It should be noted that the returns of the two banks, although based on the same distress event are unlikely to be identical. First, the banks' loan exposures are likely to be different. Second, their sizes will generally be different. Lastly, each individual bank may or may not have a prior relationship with the borrower. Therefore, the same default or bankruptcy event can have different wealth implications for the different lead banks.

[24] We thank the referee for pointing this out. We focus only on events where there is an increase in prime rates as a decrease in prime rates is unlikely to cause negative returns to banks or their borrowers. These 3 events were excluded in the estimation of Model 4 in Table 5B.

before the bankruptcy event, the number of borrowers for which these returns are available is smaller than the size of our full sample. Out of the 33 borrowers in the default sub-sample, 23 subsequently filed for bankruptcy. Thus, our borrower sample consists of many firms that failed to restructure their debt and therefore filed for bankruptcy.

These results (Table 6 Panels A and B) suggest that the borrowers experienced large negative abnormal returns around the events of both default and bankruptcy. In Panel C, we present evidence on abnormal returns from debt restructuring, in those cases when the first distress event was not a default or a bankruptcy. As can be seen, these events also have significantly negative effects on borrower returns. Our results for the borrower returns (whether on account of default or bankruptcy or distressed restructuring) are similar in magnitude to those obtained by GJL. For example, GJL find that 2 day returns of –16.7% for firms that file for bankruptcy. We find a one-day return of –13.4% for firms that file for bankruptcy. Similarly, GJL find that firms that ultimately file for Chapter 11 have a negative return of –6.3% at the first announcement of distress. The borrowers that announced a debt restructuring in our sample had a one day negative return of –5.75%.[25,26]

More importantly, we also find that the borrowers themselves had significant negative ACAR's within the same event window that their lead lender banks had negative abnormal returns. Thus, the linkage between borrower distress and the negative abnormal returns of their lead banks is made stronger. In the bank event study, we found that the default event had a strong negative effect on the bank return while the bankruptcy event (when preceded by a default) had a weaker effect. For borrowers, we find that both default and bankruptcy events (as well as distressed restructurings) result in large negative abnormal returns. This suggests that these

[25] We thank the referee for suggesting this entire section.
[26] All of these borrowers did not subsequently file for Chapter 11.

events generally had material news effects for both the borrowing firms and the banks. Perhaps, not surprisingly the effect on borrowing firms stock returns is larger (in percentage terms) due to the greater loss exposure of equity holders in distressed firms. By contrast, bank stockholders hold relatively senior debt claims on the borrowing firm and as such normally have priority over the borrowing firm's equity holders.

5. Conclusion

The risk of loan default is the one of the most important risks faced by banks. While there have been studies examining the impact of sovereign loan defaults on the stock prices of lending banks, a similar exercise has not been undertaken to analyze the impact of defaults/bankruptcy announcements of corporate borrowers on lending banks. The small size of any individual corporate loan relative to the size of a bank, the relatively high recovery rate for senior secured bank loans, and the prior anticipation of a borrower's financial difficulties, aligned with the role of the bank as an "insider" or "delegated monitor", all imply that the news of any single corporate distress might not have a significant impact on the lending bank's share price. Alternatively, industry and geography-wide correlations among distressed firms, the loss of a valuable customer relationships, the cost of lost reputation and increased regulatory scrutiny on account of a borrower's distress imply that the news of a default or a bankruptcy might have a materialy adverse impact on the share price of the lead lending bank.

This paper is the first large-sample documentation of the wealth effects for lead bank shareholders when bank borrowers face financial distress. For a lead bank the

news of default of a corporate borrower is associated with an average decline of 3.8% in its stock returns over an 11-day period surrounding the date of default. News of a corporate bankruptcy is associated with a decline in bank stock returns of 1.8% over a similar 11-day window. When banks are ranked according to their exposures to distressed firms, the price decline for the "low" exposure banks is insignificant, while that for the "high" exposure banks is large and significant. Our multivariate tests also indicate that exposure of a bank significantly affects the size of the (negative) abnormal returns on the announcement of distress.

We also find that prior banking relationships are valuable for lenders. On average, abnormal returns to banks, on the announcement of a borrower's financial distress, are significantly and negatively related to existence of a prior past borrowing relationship with that borrower. Finally, we find that the announcement of distress also has a significantly negative effect on borrower returns in our sample. This is consistent with the results of prior studies looking at the effect of distress on borrowers.

References

Altman, Edward and Vellore Kishore, 1996, Almost everything you wanted to know about the recoveries on defaulted bonds, Financial Analysts Journal, Nov./Dec., 57-64.

Andrade, Gregor, and Steven Kaplan, 1998, How costly is financial (not economic) distress? Evidence from highly leveraged transactions that became distressed, Journal of Finance 53, 1443-1493.

Beaver, William H. and Ellen E. Engel, 1996, Discretionary behavior with respect to allowances for loan losses and the behavior of security prices, Journal of Accounting and Economics 22, 177-206.

Benveniste, Lawrence M., Manoj Singh and William J. Wilhelm Jr., 1993, The failure of Drexel Burnham Lambert: Evidence on the Implications for Commercial Banks, Journal of Financial Intermediation 3, 104-137.

Berlin, Mitchell., and Loretta Mester, 1998, Deposits and relationship lending, working paper, Federal Reserve Bank of Philadelphia.

Boot, Arnoud, 2000, Relationship banking: What do we know?, Journal of Financial Intermediation 9, 7-25.

Collins, Julie H., Douglas A. Shackelford and James M Wahlen, 1995, Bank differences in the coordination of regulatory capital, earnings and taxes, Journal of Accounting Research 33, 263-291.

Gilson, Stuart, Kose John, and Larry Lang, 1990, Troubled debt restructurings: An empirical study of private reorganizations of firms in default, Journal of Financial Economics 27, 315-354.

Grammatikos, Theoharry, and Anthony Saunders, 1990, Addition to bank loan-loss reserves: Good news or bad news?, Journal of Monetary Economics 25, 289-304.

Gupton, Greg M., Daniel Gates and Lea V. Carty, 2000, Bank Loan Loss Given Default, Moody's Investors Service Global Credit Research Special Comment, November.

Franks, Julian R. and Walter N Torous, 1994, A comparison of financial recontracting in distressed exchanges and Chapter 11 reorganizations, Journal of Financial Economics 35, 349-370.

Hotchkiss, Edith, 1995, Post-bankruptcy performance and management turnover, Journal of Finance 50, 3-21.

James, Christopher, 1987, Some evidence of the uniqueness of bank loans, Journal of Financial Economics 19, 217-235.

Kaplan, Steven, 1989, The effects of management buyouts on the operating performance and value, Journal of Financial Economics 24, 217-254.

Kracaw, William A., and Marc Zenner, 1996, The wealth effects of bank financing announcement in highly leveraged transactions, Journal of Finance 51, 1931-1946.

Lamy, Robert E., Wayne Marr, and G. Rodney Thompson, 1986, The Mexican debt crisis, the IMF, and the efficiency of bank share prices, Studies in Banking and Finance 3, 203-217.

Lummer, S. and John McConnell, 1989, Further evidence on the bank lending process and the reaction of the capital markets to bank loan agreements, Journal of Financial Economics 25, 99-122.

Mikkelson, Wayne, and Megan Partch, 1986, Valuation effects of securities offerings and the issuance process, Journal of Financial Economics 15, 31-60.

Muscarella, Chris J., and Michael R. Vetsuypens, 1990, Efficiency and organizational structure: A study of reverse LBOs, Journal of Finance 45, 1389-1413.

Musumeci, James J., and Joseph H. Sinkey, 1990, The international debt crisis, investor contagion, and bank security returns in 1987: The Brazilian experience, Journal of Money Credit and Banking 22, 209-220.

Park, Sang Yong, Prafulla Nabar and Anthony Saunders, 1993, "Prime Rate Changes is there an Advantage in being First," Journal of Business, 66, 69-92.

Peterson, Mitchell A., and Raghuram G. Rajan, 1994, The benefits of lending relationships: Evidence from small business data, Journal of Finance 49, 3-37.

Peterson, Mitchell A., and Raghuram G. Rajan, 1995, The effect of credit market competition on lending relationships, Quarterly Journal of Economics 110, 406-443.

Slovin, Myron B., Marie A. Shuska, and John A. Polonchek, 1993, The value of bank durability: Borrowers as the bank stakeholders, Journal of Finance 48, 247-266.

Smirlock, Michael, and Howard Kaufold, 1987, Bank foreign lending, mandatory disclosure rules, and reaction of bank stocks to the Mexican debt crisis, Journal of Business 60, 415-432

Smith, Clifford W., 1992, Economics and Ethics: The case of Salomon Brothers, Journal of Applied Corporate Finance, 5(2), 23-38.

Wall, Larry D. and Timothy W Koch, 2000, Bank Loan Loss Accounting: A review of the theoretical and empirical evidence, Federal Reserve Bank of Atlanta Economic Review, Second Quarter, 1-19.

Tashijian, Elizabeth, Ronald C. Lease and John J McConnell, 1996, Prepacks An Empirical Analysis of prepackaged bankruptcies, Journal of Financial Economics 40, 135-162.

Weiss, Lawrenc A., 1990, Bankruptcy resolution Direct costs and violation of priority of claims, Journal of Financial Economics 27, 285-314.

Wruck, Karen H., 1990, Financial distress, reorganization, and organizational efficiency, Journal of Financial Economics 27, 419-444.

TABLE 1

Descriptive Statistics of the sample

This table presents the descriptive statistics of the credit transactions and the lead banks of the borrowers that experienced financial distress over the period 1987-1996. The sample is categorized by the year of onset of financial distress, i.e. default on public debt or filing for chapter 11 (in Panel A), the number of lead banks involved (in Panel B), the size and type of transaction (in Panel C), and the specific structure of the credit transaction (in Panel D).

Panel A: Distribution of the Sample by Year of Announcement		
Year of Financial Distress	Number of defaults	Number of Bankruptcies
1987	2	1
1988	1	1
1989	3	7
1990	16	16
1991	27	32
1992	11	22
1993	3	11
1994	2	4
1995	6	6
1996	0	1
Total (1987-1996)	71	101

Panel B: Lender Characteristics		
	Default	Chapter 11 filing
Number of bank announcement events	99	130
Number of different banks involved	22	36
Average transaction size to bank equity ratio (median)	19.02 % (6.8%)	12.10% (2.7%)
Average loan loss reserve ratio (median)	2.3% (2.05%)	2.08% (2.05%)

Panel C: Mean (median) statistics for the credit transactions						
Transaction Type	Default			Chapter 11		
	No. of Transactions	Transaction size ($ mm)	Syndicate size	No. of Transactions	Transaction size (mm)	Syndicate size
Debt Repayment/consolidation	26	208 (145)	10.4 (5.5)	45	156 (80)	9.9 (6)
General corporate purposes	21	236 (100)	9.2 (6)	36	162 (50)	7.4 (4)
Working capital	25	161 (110)	8.2 (7)	31	128 (78)	7 (2)
Takeover acquisition	17	962 (200)	22.1 (7)	18	912 (212)	20.8 (8)
Leveraged buyout	16	616 (327)	25.9(17)	14	380 (357)	20 (8)
Recapitalization	10	919 (370)	33 (19.5)	10	816 (287)	29(15)
Others	8	167 (112)	10.8 (5)	20	101 (53)	5 (1.5)
TOTAL	123	415 (195)	15.2 (7)	174	280 (260)	11.4 (4)

Panel D : Additional Information on the Structure of Credit Transactions		
	Default	Chapter 11 filing
	Mean (Median)	Mean (Median)
Premium over LIBOR (n=88; 96)	2.05% (2.50%)	1.91% (2.00%)
Premium over US prime (n=110; 151)	1.24% (1.50%)	1.17% (1.37%)
Commitment fee (n=74; 88)	0.46% (0.50%)	0.42% (0.50%)
Up-front fee (n=59; 81)	1.21% (1.15%)	1.02% (0.87%)

TABLE 2

Cumulative Abnormal Returns for the Lead Banks on the Announcement of Financial Distress by their Borrowers

Cumulative abnormal return (CARs) for the lead banks of the firms facing financial distress over the period 1987-1996. Panel A describes the share performance of lead bank(s) around the date of default by the borrower and Panel B describes the same around the date of chapter 11 filing. The sample of firms that defaulted on their public debt and the date of default is from Altman and Kishore (1996) and the sample of firms that filed for chapter 11 is compiled from multiple sources including Hotchkiss (1995), DJNR, the Bankruptcy Almanac, and Lexis bankruptcy library. CARs are calculated using the Center for Research in Security Prices (CRSP) database.

Panel A : Abnormal returns for the lead banks when borrowers default on public debt (N =99)

Event Window	ACAR	t-statistic	Median CAR	Wilcoxon z-Statistic
11-day window [-8, 2]	-3.766%	-5.327***	-2.547%	-3.886***
7-day window [-4, 2]	-1.922%	-3.445***	-1.158%	-3.084***
5-day window [-2, 2]	-1.750%	-3.769***	-1.522%	-3.192***
3-day window [-1, 1]	-0.857%	-2.459**	-0.719%	-2.513**

Panel B : Abnormal returns for the lead banks when borrowers file for Chapter 11 (N =130)

Event Window	ACAR	t-statistic	Median CAR	Wilcoxon z-Statistic
11-day window [-8, 2]	-1.832%	-3.303***	-1.305%	-2.165**
7-day window [-4, 2]	-1.089%	-2.437**	-0.686%	-2.003**
5-day window [-2, 2]	-0.911%	-2.131**	-0.350%	-2.268**
3-day window [-1, 1]	-0.492%	-1.367	-0.386%	-1.391

*** Significant at 1% level
** Significant at 5% level
* Significant at 10% level

TABLE 3

Cumulative Abnormal Returns for the Higher and Lower Exposure Lead Banks on Announcement of Financial Distress by their Borrowers

Average Cumulative Abnormal Return (ACARs) for the lead bank(s) of the firms facing financial distress over the period 1987-1996. Panel A compares the share performance of higher exposure lead banks with that of lower exposure lead bank(s) around the date of default by the borrower and Panel B describes the same around the date of Chapter 11 filing by the borrower. The exposure is defined as the ratio of aggregate transaction size divided by the lead bank's equity as reported for the latest year before borrowers financial distress. The sample of firms that defaulted on their public debt and the date of default is from Altman and Kishore (1996) and the sample of firms that filed for chapter 11 is compiled from multiple sources including Hotchkiss (1995), DJNR, the Bankruptcy Almanac, and Lexis bankruptcy library. CARs are calculated using the Center for Research in Security Prices (CRSP) database.

Panel A : Average Cumulative Abnormal Returns (ACAR)for the lead banks around the date of default by the banks' borrowers

Event Window	ACAR for higher exposure banks	ACAR for lower exposure banks	*t* - statistic for Difference
11-day window [-8, 2]	-5.485%	-2.081%	-2.035**
	(-5.517)***	(-2.034**)	
7-day window [-4, 2]	-3.212%	-0.792%	-2.374**
	(-4.125)***	(-0.763)	
5-day window [-2, 2]	-3.086%	-0.441%	-2.784***
	(-4.559)***	(-0.790)	
3-day window [-1, 1]	-1.829%	0.098%	-2.697***
	(-3.692)***	(-0.202)	

Panel B : Average Cumulative Abnormal Returns (ACAR)for the lead banks around the date of Chapter 11 filing by the banks' borrowers

Event Window	ACAR for higher exposure banks	ACAR for lower exposure banks	*t* - statistics for Difference
11-day window [-8, 2]	-2.946%	-0.719%	-1.701*
	(-3.499)***	(-1.173)	
7-day window [-4, 2]	-1.855%	-0.321%	-1.624
	(-2.909)***	(-0.536)	
5-day window [-2, 2]	-1.268%	-0.554%	-0.979
	(-2.127)**	(-0.886)	
3-day window [-1, 1]	-0.894%	-0.095%	-1.418
	(-1.739)*	(-0.201)	

*** Significant at 1% level
** Significant at 5% level
* Significant at 10% level

TABLE 4

Cumulative Abnormal Returns for the Lead Banks for Subsamples of their Borrowers Filing for Bankruptcy

Average Cumulative Abnormal Return (ACARs) for the lead bank(s) of the firms that defaulted on their bonds at least 7 days prior to filing for bankruptcy over the period 1987-1996. Panel A & B describes the share performance of the lead banks of the firms which defaulted on their public debt at least 7 days before filing for bankruptcy. Panel A presents the ACAR around the date of default and Panel B describes the same around the date of bankruptcy by the borrowers. Panel C describes the performance of lead banks for the subsample of bankrupt firms that either did not have public debt out standing or the default and bankrutcy announcement was made simultaneously. The sample of firms that defaulted on their public debt and the date of default is from Altman and Kishore (1996) and the sample of firms that filed for chapter 11 is compiled from multiple sources including Hotchkiss (1995), DJNR, the Bankruptcy Almanac, and Lexis bankruptcy library. CARs are calculated using the Center for Research in Security Prices (CRSP) database.

Panel A : Average Cumulative Abnormal Returns (ACAR) for the lead banks on the date of default for their borrower firms that subsequently filed for bankruptcy

		(N=51)
Event Window	ACAR	t-Statistic
11-day window [-8, 2]	-2.812%	-3.011 ***
7-day window [-4, 2]	-1.929%	-2.787 ***
5-day window [-2, 2]	-1.291%	-2.256**
3-day window [-1, 1]	-0.669 %	-1.561

Panel B : Average Cumulative Abnormal Returns (ACAR) for the lead banks on the date of bankruptcy by the firms in Panel A sample

		(N=51)
Event Window	ACAR	t-Statistic
11-day window [-8, 2]	-0.187%	0.358
7-day window [-4, 2]	-0.163%	0.083
5-day window [-2, 2]	-0.321%	0.008
3-day window [-1, 1]	0.0409%	0.611

Panel C : Average Cumulative Abnormal Returns (ACAR) for the lead banks on the date of bankruptcy by the firms that had no public debt or the default and bankruptcy occurred simultaneously

		(N=79)
Event Window	ACAR	t-Statistic
11-day window [-8, 2]	-2.894%	-4.267***
7-day window [-4, 2]	-1.686%	-3.193***
5-day window [-2, 2]	-1.293 %	-2.739***
3-day window [-1, 1]	-0.836%	-2.243**

*** Significant at 1% level
** Significant at 5% level
* Significant at 10% level

TABLE 5 A

Regressions relating the performance of lead bank shares around the date of financial distress of the borrowers to the lender and borrower characteristics

The OLS regression of cumulative abnormal returns (CAR) for the 11-day window around the dates of distress (bankruptcy in case there is no prior news of distress, default if it occurs before bankruptcy). The independent variables are: RELATIONSHIP is dummy variable that takes the value one if the bank provided credit to the firm in the past. EXPOSURE is the ratio calculated by dividing the aggregate sum of all credit facilities extended to the distressed firm by the equity of the lead bank as reported for the year before the year of distress. RECESSION DUMMY is a dummy variable that is 1 if the date of distress is between July 1,1990 and March 31, 1991. LBO is dummy variable that takes the value one if the transaction was for the purpose of leveraged buyout. In addition to the variables reported the regression also includes industry dummies based on the one digit SIC code of the borrower. Numbers in the parentheses are standard errors.

Variable	(1)	(2)	(3)
INTERCEPT	0.0139 (0.0191)	0.0171 (0.0172)	0.0181 (0.0172)
EXPOSURE	-0.0434* (0.0149)		-0.0295* (0.016 5)
RELATIONSHIP		-0.0379*** (0.0114)	-0.0343*** (0.0121)
RECESSION DUMMY	-0.0556*** (0.0179)	-0.0521*** (0.0167)	-0.0517*** (0.0166)
LBO DUMMY	0.0256 (0.0215)	0.0269 (0.0184)	0.0266 (0.0184)
N	156	156	156
Adj. R Sq.	0.10	0.13	0.14

*** Significant at 1% level
** Significant at 5% level
*Significant at 10% level

TABLE 5 B

Regressions relating the performance of lead bank shares around the date of financial distress of the borrowers to the lender and borrower characteristics

The OLS regression of cumulative abnormal returns (CAR) for the 11-day window around the dates of distress (bankruptcy in case there is no prior news of distress, default if it occurs before bankruptcy). See Table 5 A or Section 4.5 for the definitions of the exposure, relationship, recession and lbo variables. BANKSIZE is the natural log of the total assets of the lead bank as reported for the year prior to the year in which distress occurs. The LOAN LOSS RESERVE is the loan loss reserve of the bank in the year prior to the date of distress divided by the bank's capital in that year. The difference between the loan loss reserve of the bank at the end of the year of the first distress event (default or bankruptcy) and the loan loss reserve in the year before the distress event divided by the bank's capital in the year before distress is the LOAN LOSS RESERVE DIFFERENCE. EXP x LLRD is the interaction of the exposure and the loan loss difference variables. CREDIT SPREAD is the spread of the loan over LIBOR at the time the loan was issued. The PRIOR DISTRESS DUMMY takes a value of 1 if the first distress event was not a default or a bankruptcy and the company experienced financial distress as defined in Gilson, John and Lang (1990). The MULTIPLE BANK DUMMY takes a value of 1 when the borrower has multiple lead banks. In addition to the variables reported the regression also includes industry dummies based on the one digit SIC code of the borrower. Numbers in the parentheses are standard errors.

Variable	(1)	(2)	(3)	(4)
INTERCEPT	0.0072	0.0034	0.0184	-0.0236
	(0.0217)	(0.0222)	(0.0174)	(0.0408)
EXPOSURE (EXP)	-0.0333*	-0.0364*	-0.0413**	-0.0367*
	(0.0184)	(0.0179)	(0.0194)	(0.0205)
RELATIONSHIP	-0.0340***	-0.0336***	-0.0337***	-0.0308***
	(0.012)	(0.0121)	(0.0121)	(0.0123)
RECESSION DUMMY	-0.0554***	-0.0564	-0.0509***	-0.0722***
	(0.0166)	(0.0165)	(0.0166)	(0.0273)
LBO DUMMY	0.0253	0.0253	0.0272	0.0415*
	(0.0182)	(0.0182)	(0.0184)	(0.0203)
LOAN LOSS RESERVE	0.0278	0.0379		
	(0.0303)	(0.0326)		
LOAN LOSS RESERVE DIFFERENCE (LLRD)		0.0394		
		(0.0449)		
LLRD x EXP			0.0797*	
			(0.0442)	
BANKSIZE				0.0003
				(0.0002)
CREDIT SPREAD				-0.0131
				(0.0117)
PRIOR DISTRESS DUMMY				-0.0055
				(0.0122)
MULTIPLE BANK DUMMY				-0.0056
				(0.0124)
N	156	156	156	153
Adj. R Sq.	0.14	0.14	0.14	0.14

*** Significant at 1% level
** Significant at 5% level
* Significant at 10% level

TABLE 6

Cumulative Abnormal Returns for borrowers on their Announcement of Financial Distress

Cumulative abnormal return (CARs) for the borrower firms facing financial distress over the period 1987-1996. Panel A describes the share performance of firm around the date of its default on public debt and Panel B describes the same around the date of chapter 11 filing. Panel C shows the abnormal return around the date of the first restructuring, provided this restructuring was not a default or a bankruptcy. Average cumulative abnormal return (ACAR) and *t*-statistics are calculated using methods similar to Gilson, John and Lang (1990) and Tashijian, Lease and McConnell (1996). The sample of firms that defaulted on their public debt and the date of default is from Altman (1996) and the sample of firms that filed for chapter 11 is compiled from multiple sources including Hotchkiss (1995), DJNR, the Bankruptcy Almanac, and Lexis bankruptcy library. CARs are calculated using the Center for Research in Security Prices (CRSP) database.

Panel A: Abnormal returns for the borrowers when they default on public debt

Event Window	Number of firms	ACAR	t-statistic
11-day window [-8, 2]	33	-10.209%	-5.674***
7-day window [-4, 2]	33	-7.378%	-4.840***
5-day window [-2, 2]	33	-4.910%	-3.786***
1-day window [day 0]	33	-2.420%	-5.306***

Panel B: Abnormal returns for the borrowers when they file for Chapter 11

Event Window	Number of firms	ACAR	t-statistic
11-day window [-8, 2]	43	-22.462%	-9.488***
7-day window [-4, 2]	43	-21.739%	-9.034***
5-day window [-2, 2]	43	-18.568%	-8.714***
1-day window [day 0]	43	-13.357%	-17.236***

Panel C: Abnormal returns for the borrowers when they announce distressed restructuring before the default or bankruptcy

Event Window	Number of firms	ACAR	t-statistic
11-day window [-8, 2]	31	-6.683%	-4.690***
7-day window [-4, 2]	31	-8.145%	-6.512***
5-day window [-2, 2]	31	-8.696%	-7.958***
1-day window [day 0]	31	-5.752%	-9.362***

*** Significant at 1% level
** Significant at 5% level
* Significant at 10% level