

**FURTHER EVIDENCE ON THE BANK LENDING PROCESS  
AND THE CAPITAL-MARKET RESPONSE TO  
BANK LOAN AGREEMENTS\***

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This paper investigates the hypothesis that bank loans convey information to the capital market regarding the value of the borrowing firm. Unlike previous researchers, we distinguish between new bank loans and loan renewals. For new loans, the excess stock return for borrowers around the loan announcement is not significantly different from zero. For favorable loan revisions, the excess return is significantly positive; for unfavorable revisions, it is significantly negative. We interpret these results to imply that banks play an important role as transmitters of information in capital markets, but new bank loans per se do not communicate information.

## **1. Introduction**

A rapidly evolving view among financial economists is that banks play an important, and perhaps unique, role as transmitters of information in capital markets. This view holds that banks either produce or are given access to information not available to other capital-market participants. Banks make lending decisions on the basis of this information and the banks' decisions, which become publicly available, provide signals about borrowers' creditworthiness.

James (1987) provides evidence that supports this view. In an event study of the common stocks of firms announcing bank credit agreements, he reports an excess return of +1.93% over the two-day period surrounding the announcements that is significantly different from zero. This evidence is consistent with the hypothesis that banks play a unique role as transmitters of information in

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capital markets, because the average excess return in response to the announcement of other types of corporate financings is either significantly negative or not significantly different from zero.<sup>1</sup> Confirmatory evidence is provided by Mikkelson and Partch (1986). In a longitudinal study of 360 firms, they analyze stock returns around announcements of various classes of security offerings over an 11-year period and report results similar to those found by other authors, including a significant excess return of +0.89% around the announcement of bank credit agreements.

To some extent, though, James and Mikkelson and Partch investigate only part of the phenomenon. Neither study distinguishes between new credit agreements and extensions or renewals of existing agreements. A fuller appreciation of the bank lending process and the way in which banks transmit information in capital markets can be gained by making this distinction. Doing so can indicate, for example, whether banks have an information advantage over other capital-market participants at the outset of a loan agreement or whether this advantage comes about as the result of a continuing working relationship with the borrower.

This paper expands upon the work of James and Mikkelson and Partch by differentiating between new bank credit agreements and revisions to already existing agreements. Like James and Mikkelson and Partch, we find a positive and significant two-day announcement-period excess return for the entire sample of bank loan announcements. However, when the observations are divided into announcements of new credit agreements and announcements of revisions to existing agreements, we find that the positive announcement-period return is due almost solely to the latter group.

When the sample of announcements on existing agreements is divided into those in which the credit agreement is expanded or in some other way improved for the borrower and those in which the agreement is cancelled or made more restrictive, we find a significantly positive announcement-period return for the former group and a significantly negative return for the latter group. We interpret these results as evidence that banks play an important role as transmitters of information in capital markets.

## **2. Asymmetric information and the bank lending process**

There are at least two perspectives on the way in which banks gain access to information not available to other capital-market participants. According to

<sup>1</sup>See Asquith and Mullins (1986), Dann and Mikkelson (1984), Eckbo (1986), Linn and Pinegar (1988), Loderer and Van Drunen (1986), and Masulis and Korwar (1986). Smith (1986) summarizes this literature. Two exceptions to this general observation are Kim and Stulz (1988), who report a positive and significant excess return around the announcement of Eurobond issues, and Wruck (1989), who documents a positive and significant excess return around the announcement of private equity offerings.

the first, banks invest in information-gathering technology that gives them a competitive advantage in evaluating risky lending opportunities. When a potential borrower applies for a loan, the bank evaluates the borrower, and the bank's loan decision signals the prospective borrower's creditworthiness to other capital-market participants. Benston and Smith (1976), Diamond (1984), and Campbell and Kracaw (1980), among others, develop this idea more fully. If it is assumed that a firm will enter into a new bank loan agreement only if it currently has no bank financing in place or the terms of the new credit agreement are more favorable than its current agreement, this line of reasoning predicts a positive stock-price response when new bank loans are announced.

An alternative view is that banks gain access to private information about their customers over time as a result of an intimate, continuing business relationship with them. This idea can be traced to Black (1975) and Kane and Malkiel (1965). Fama (1985) expands on this theme to argue that banks play a unique role in providing funds to businesses. Fama's argument is composed of two parts. First, bank debt, along with other types of privately placed fixed-payoff securities, is classified as inside debt. Banks have access to information not available to holders of the firm's publicly traded securities or those who hold other outside claims, such as employees and trade creditors. Second, because bank loans typically have a low priority among fixed-payoff claims, signals from the credit renewal process are credible and consequently reduce the monitoring costs incurred by the firm's other claimants.

Fama's argument for the uniqueness of bank loans places considerable weight on the loan renewal process as a mechanism for transmitting information. Loan renewals are important because of the periodic review to which firms that enter into short-term bank credit agreements submit themselves. Within this framework, there is no requirement that banks have a competitive information advantage over other suppliers of funds at the initiation of the loan. Rather, banks learn about their customers through time as a natural outgrowth of their business interactions. This line of reasoning suggests that if there is to be a stock-price response to announcements of bank credit agreements, the effect should be observed around announcements of revisions to, not initiations of, such agreements.<sup>2</sup> Of course, announcements regarding loan revisions or renewals can signal either positive or negative information. For example, a revision in which the interest rate on the loan is reduced or restrictive covenants are relaxed is likely to provide positive information about the state of the firm. Alternatively, an announcement in which the credit

<sup>2</sup>A variation on this theme is that a firm's willingness to submit to periodic credit evaluations may provide market participants with a positive signal concerning management's assessment of the firm's prospects. If so, announcements of new credit agreements should be associated with a positive stock-price reaction even if banks have no inside information at the initiation of the credit agreement. In order for this scenario to lead to a separating equilibrium, firms must face a penalty for false signaling.

limit is reduced or the interest rate is increased is likely to convey negative information.

The two perspectives on how banks transmit information are not mutually exclusive. It is entirely possible that banks have a competitive advantage over other capital-market participants in evaluating new borrowers and that they also gain access to private information through a close working relationship with borrowers. Consequently, announcements of both new credit agreements and revisions to existing agreements can convey information to the capital market. By distinguishing between new and revisions to existing credit agreements, and between positive and negative revisions to existing agreements, this study sheds additional light on the bank lending process and the manner in which banks transmit information in capital markets.

### 3. Sample selection procedure

To construct a sample, we searched the *Wall Street Journal Index (WSJI)* for the period 1976–1986 for announcements concerning credit agreements between U.S. corporations and U.S. or foreign banks. Only firms with stock prices on the Center for Research in Security Prices (CRSP) daily file of New York Stock Exchange (NYSE)- and American Stock Exchange (AMEX)-listed companies are included in the sample. The search resulted in a sample of 1,145 announcements of bank credit agreements.

Observations are deleted from the sample if other major corporate announcements are contained in the same article or appear in another *WSJ* article on the same day, the prior day, or the following day. Examples of these ‘contaminating’ announcements include announcements of dividends, earnings, stock issues, other debt issues, management changes, acquisitions, exchange offers, divestitures, bankruptcy filings, joint ventures, stock repurchases, credit rating changes, and asset sales. In all, 288 observations are deleted for this reason. An additional eight observations are removed because we cannot determine whether the *WSJ* article corresponds to the original announcement date of the credit agreement. Finally, 121 announcements are deleted because the CRSP file does not include enough daily returns data for the empirical analysis that follows. Thus, the final sample contains 728 clean announcements of bank credit agreements.

On the basis of information contained in the *WSJ*, we initially classify announcements as concerning new or existing credit agreements. Specifically, all credit agreements are initially categorized as new if the *WSJ* either indicates that the agreement is new or does not indicate that it is a revision, renewal, extension, replacement, or renegotiation of an existing credit agreement. For those agreements classified as new, we searched each borrower’s annual report for the year-end before and after the announcement to determine whether the announcement actually involves a revision of an existing

credit agreement. If so, we reclassify the announcement accordingly. Thus, any credit agreement that is identified by either the *WSJ* or the firm's annual report as being a revision to an existing agreement is placed in the category of revisions to existing credit agreements. On this basis, of the 728 clean announcements, 371 are of new credit agreements and 357 concern existing agreements. Of the new credit agreements, 334 are by industrial firms, and 341 of the revised credit agreements are by industrial firms. The remaining 37 new credit agreements and 16 revised agreements are by commercial banks and utilities.

After this search, some ambiguity remains as to whether all of the announcements classified as new credit agreements actually refer to new credit agreements with new banks or whether some refer to new credit agreements with the same bank or banks. For 214 of the 371 observations classified as new agreements, the annual report states that the agreement is 'new', but does not specifically indicate that it involves a new bank or banks. Unfortunately, the typical annual report contains a discussion of the firm's bank credit agreements, including a discussion of the terms of the agreement, but does not identify the names of the lender banks. However, for 78 announcements, the annual report indicates that the credit agreement is new and also indicates that it involves a new set of banks. Thus, depending on the definition employed, the sample of new loans contains either 371, 214, or 78 observations. Table 1 provides a frequency distribution of the announcements according to the year in which they occur.

Table 1

Frequency distribution by year for a sample of 371 new bank credit agreements and 357 revised bank credit agreements for NYSE- and AMEX-listed companies, 1976-1986.

Year	All credit agreements	All new credit agreements	Credit agreements denoted as new in annual report	Credit agreements with new banks identified in annual report	Revised credit agreements
1976	86	37	23	8	49
1977	103	44	25	8	59
1978	94	52	33	15	42
1979	105	62	36	11	43
1980	83	49	23	7	34
1981	42	26	9	5	16
1982	66	36	23	8	30
1983	47	17	11	5	30
1984	47	21	15	5	26
1985	33	18	9	4	15
1986	22	9	7	2	13
Total	728	371	214	78	357

Examples typical of announcements of new credit agreements include those by AVC Corp.:

AVC Corp. said it arranged a \$17 million financing agreement with a group of four banks.

The accord provides for a revolving credit until March 31, 1978, at an interest rate 0.75 percentage-point over the prime, or minimum, lending rate. After that date, the credit will convert into a five-year term loan payable in 20 equal installments. The interest rate for the term loan hasn't been determined.

The company, which is engaged in three principal lines of business – fasteners and formed metal parts, textiles, and television broadcasting – said the agreement will consolidate its short- and medium-term obligations. It also will be used partially to fund its \$3.5 million 1976 capital-spending plans.

The banks in the lending group are First Pennsylvania Bank, Citibank, Cleveland Trust Co., and U.S. Trust Co. (*WSJ*, July 2, 1976, p. 19)

and by EG & G Inc.:

EG & G Inc. said it negotiated a \$150 million multicurrency credit agreement with a banking group headed by Morgan Guaranty Trust Co.

EG & G said the eight-year agreement consists of a five-year revolving credit arrangement followed by a three-year term loan.

The company said proceeds are to be used for general corporate purposes. Initially, EG & G said about \$70 million will be used to replace short-term borrowings used last year to purchase four million EG & G shares.

EG & G manages projects for the government, including the Nevada nuclear test site and Cape Canaveral, and makes scientific parts and instruments. (*WSJ*, April 12, 1985, p. 45)

Announcements representative of revised credit agreements include those by Skil Corp.:

Skil Corp. said it negotiated a \$25 million loan with Continental Illinois National Bank & Trust Co. of Chicago, First National Bank of Chicago, and Algemene Bank Nederland N.Y.

The seven-year agreement replaces a three-year credit with the same banks. The old agreement, which was due to expire next year, had a current balance of \$17 million, the maker of power tools said. (*WSJ*, June 16, 1977, p. 31)

Table 2

Descriptive statistics for a sample of 371 new bank credit agreements and 357 revised bank credit agreements for NYSE- and AMEX-listed companies, 1976–1986.

Variable	New agreements			Revised agreements		
	Range	Mean	Median	Range	Mean	Median
Amount of credit agreement (millions of dollars)	2.0–3000	113.8	40.0	2.0–4800	120.8	45.0
Market value of equity <sup>a</sup> (millions of dollars)	2.1–6578	416.4	95.6	1.0–4846	223.7	66.0
Amount of credit agreement/ market value of equity	0.004–7.1	0.66	0.36	0.003–77.8	2.17	0.65
Maturity of credit agreement (years)	0.5–15.0	6.2	7.0	0.1–15.0	4.8	5.0

<sup>a</sup>Number of shares of common stock outstanding multiplied by the market price per share five days before the announcement of the credit agreement.

and by Genisco Technology Corp.:

Genisco Technology Corp. said it was granted a new \$10 million unsecured revolving line of credit by Bank of America.

The computer graphics and peripheral and electronics company said it can borrow as much as \$10 million at or below the bank's prime, or base, rate under the agreement, which expires April 30, 1989.

The agreement supersedes a secured line of credit the bank issued in 1981. Under that agreement, Genisco could borrow as much as \$6 million, depending on several factors at the bank's prime rate over five years. (*WSJ*, June 1, 1983, p. 28)

When the information is available, the dollar amount of the loan and the term-to-expiration of the credit agreement are recorded. Table 2 displays summary statistics for these data.

#### 4. Methodology

We are interested in the relation between changes in the market value of common stock and announcements of bank credit agreements. The method of analysis is an event-time study of stock returns over the two-day period encompassing the day on which information concerning the credit appears in the *WSJ* (day 0) and the previous day (day -1).

We use the same empirical procedure employed by James (1987) and Mikkelson and Partch (1986). For each firm, we calculate excess returns using

a market-model benchmark with market-model parameters estimated over a period beginning 170 days before and ending 21 days before the announcement date. To determine the statistical significance of announcement-period returns, we compute standardized excess returns by dividing the announcement-period excess return by the respective standard deviation of the prediction error obtained from the market model. We then sum the standardized excess returns and divide the sum by the square root of the number of observations to compute a  $z$ -statistic. In addition, we calculate the proportion of announcements with positive announcement-period excess returns, and conduct a binomial test to determine whether that proportion is significantly different from the proportion of positive residuals over the period beginning 170 days before and ending 21 days before the announcement.

## 5. Stock prices and announcement of bank loan agreements

### 5.1. Full-sample results

Table 3 presents two-day announcement-period excess returns for the full sample of bank credit agreements and for various subsamples. For the full sample, the excess return is +0.61%, which, with a  $z$ -statistic of +2.69, is significantly different from zero. This result is consistent with the findings of James and Mikkelsen and Partch and supports the notion that bank credit decisions convey information to the capital market. However, when the sample is divided into announcements of new loans and announcements of revisions to existing credit agreements, it is evident that the two-day excess return for the full sample is attributable, almost exclusively, to the latter group. For the sample of new credit agreements, the average announcement-period excess return of -0.01% is not significantly different from zero ( $z$ -statistic = -0.47). Similarly, for the sample of agreements specifically identified as new in the annual report and for the sample in which the annual report indicates that the new loans involve new banks, the announcement-period excess returns of +0.07% and +0.23% are not significantly different from zero. However, for the sample of announcements concerning already existing loans, the average excess return of +1.24% is significantly positive ( $z$ -statistic = +4.33). In addition, the average excess return for the sample of loan revisions is statistically different from the average excess return for the full sample of new loans and for the sample of those indicated as new in the annual reports at the 0.05 level of significance. The results are unchanged when only industrial firms are included in the samples. When the small samples of banks and utilities are analyzed separately, however, none of the announcement-period excess returns are significantly different from zero.



Table 3

Average announcement-period excess returns, significance tests, and proportion of positive excess returns for a sample of 371 new bank credit agreements and 357 revised bank credit agreements for NYSE- and AMEX-listed companies, 1976-1986.

Type of announcement	Number of observations	Announcement-period excess return (%)	z-statistic	Announcement-period proportion of positive excess returns
<i>(A) Full sample of credit agreements</i>				
All credit agreements	728	0.61 <sup>d</sup>	2.69	0.485
New credit agreements	371	-0.01	-0.47	0.439
Credit agreements denoted as new in annual reports	214	0.07	0.41	0.458
Credit agreements with new banks identified in annual reports	78	0.23	0.47	0.500
Revised credit agreements	357	1.24 <sup>d</sup>	4.33	0.532 <sup>c</sup>
<i>(B) Revised credit agreements</i>				
Favorable revisions	259	0.87 <sup>d</sup>	3.76	0.556 <sup>c</sup>
Unfavorable revisions	22	-3.86 <sup>d</sup>	-3.28	0.318
Mixed revisions <sup>a</sup>	76	3.98 <sup>d</sup>	4.20	0.513
<i>(C) Credit agreements with mixed revisions</i>				
No prior negative news <sup>b</sup>	26	2.35	1.51	0.538
Prior negative news <sup>c</sup>	50	4.82 <sup>d</sup>	4.08	0.500
<i>(D) Credit agreements with unfavorable revisions</i>				
Cancelled or reduced by borrower	10	0.16	0.27	0.500
Revised unfavorably by lender	12	-7.22 <sup>d</sup>	-4.68	0.167 <sup>f</sup>

<sup>a</sup>For the observations in this subsample, some terms of the new credit agreement are more favorable than those in the old agreement and some terms are less favorable.

<sup>b</sup>No negative news concerning the credit agreement was published in the *WSJ* in the twelve months prior to the revision.

<sup>c</sup>Negative news concerning the credit agreement was published in the *WSJ* within twelve months prior to the revision.

<sup>d</sup>Announcement-period excess return is significantly different from zero at the 0.01 level.

<sup>e</sup>Proportion of positive announcement-period excess returns is significantly different from the proportion of positive residuals during the market-model estimation period at the 0.01 level.

<sup>f</sup>Proportion of positive announcement-period excess returns is significantly different from the proportion of positive residuals during the market-model estimation period at the 0.05 level.

## 5.2. Revisions to existing credit agreements

Announcements concerning existing credit agreements can contain either positive or negative information. To determine whether the market distinguishes between announcements on this basis, we divide the sample into three categories according to whether (1) the terms of the agreement are revised

favorably, (2) the terms are revised unfavorably, or (3) some terms are revised favorably, while others are revised unfavorably.

There are four dimensions of a credit agreement by which the terms of a loan can be revised: its maturity, interest rate, dollar value, and protective covenants. The protective covenants include such items as a minimum current ratio, a maximum leverage ratio, and the security pledged against the loan. Observations are placed in the favorably-revised category if the *WSJ* article indicates that the maturity of the agreement is lengthened, the interest rate is reduced, the dollar value of the loan is increased, or the protective covenants are made less restrictive. In 43 cases the *WSJ* article reports that the loan 'replaced' an existing credit agreement, but gives no specific information about the terms of the previous loan. In those cases, we assume that the only provision that changes is the maturity date, so those observations are placed into the favorably-revised category. This category contains 259 observations. The Skill Corp. and Genisco Technology Corp. announcements quoted earlier are examples of favorable revisions.

The second category contains observations in which the agreement is revised unfavorably. Either the amount of the loan is reduced, the maturity is shortened, the interest rate is increased, or the protective covenants are made more severe. This group contains 22 observations. One way to simultaneously reduce the amount of the loan and decrease its maturity is to cancel the credit agreement. This occurs in eight cases. The following announcement concerning Storage Technology Corp. is an example of an unfavorable revision to a credit agreement:

Storage Technology Corp.'s loss of a loan commitment from Chemical Bank leaves the maker of data storage systems short of cash and hurts its effort to continue operations.

The Louisville, Colorado-based company said Friday that the agreement between it and Chemical Bank, a unit of Chemical New York Corp., which would have provided Storage Technology with a \$150 million credit line, had been terminated. Storage Technology needs the funds to continue operations while it reorganizes under Chapter 11 of the federal Bankruptcy Code.

However, Storage Technology said it is negotiating with other financial institutions for new financing, and a company source said the 'probabilities are very high' that the company could find a new cash infusion in a week or two. Any new loan will have to be approved by the bankruptcy court.

Neither Storage Technology nor Chemical Bank would comment on why the credit commitment fell through. Touche Ross & Co., the eighth-biggest accounting firm in the U.S., which claimed credit for

arranging the agreement, couldn't be reached for comment. (*WSJ*, November 19, 1984, p. 4)

The third category contains 76 observations in which some terms of the credit agreement are revised favorably and others unfavorably. Often, the announcements describe these revisions as a 'restructuring' of the loan. The following announcement regarding International Systems and Controls Corp. is an example of a 'mixed' revision:

International Systems & Controls Corp. said it signed an agreement with its banking group for temporary additional financing and modifications of its collateral in connection with its revolving credit agreement expiring July 1.

Earlier this month, the engineering, manufacturing, and financial concern said it arranged additional financing, coupled with an increase in collateral and deferral of certain interest payments to cover differences between working capital requirements and proceeds expected from dispositions and collections.

The new agreement doesn't have a specific maturity date, doesn't include a formal waiver of existing default items, and doesn't specifically extend the maturity date of the existing agreement, ISC said. But it is planned to be retired in the near future, the company added.

ISC said it is negotiating with its banks for sizable periodic debt reduction and retirement of borrowings outstanding under the revolving agreement.

ISC didn't give any details but said it believes the temporary financing will enable it to deal with its working capital requirements until it recovers capital from its dispositions and divestitures and collects major project receivables currently in negotiation. (*WSJ*, May 31, 1978, p. 40)

The announcement-period excess return for each loan category is presented in panel B of table 3. The excess return of +0.87% for the sample in which the terms of the credit agreements are revised favorably is significantly greater than zero at the 0.01 level ( $z$ -statistic = +3.76), while the excess return of -3.86% for the sample in which the terms are revised unfavorably is significantly less than zero ( $z$ -statistic = -3.28). These results indicate that the loan revision and renewal process is an important mechanism for transmitting information and that capital-market participants respond in a predictable way to unambiguous announcements concerning the creditworthiness of the bank's borrowers. Our results are consistent in one aspect to the findings of Holtausen and Leftwich (1986), who investigate the information content of bond rating changes. Similar to our findings, they report a significant negative excess

return around the announcement of downgradings by Moody's and Standard and Poors. Surprisingly, they report an insignificant excess return around announcements of rating upgrades.

For the sample of mixed revisions, the excess return of +3.98% is also significantly greater than zero and is much larger than the excess return for the sample of favorably-revised agreements. This result is puzzling in that, a priori, we anticipated that this class of announcements would convey a less positive signal about the state of the firm than announcements of purely favorable revisions.

### 5.3. *A closer look at mixed revisions*

We can think of one possible explanation for the highly positive returns around mixed-revision announcements. Consider why it is in the best interest of both the lender and the borrower to simultaneously improve some terms of an agreement and make some terms less favorable. If the borrower cannot meet certain covenants of the loan agreement, those terms must be relaxed if default is to be avoided. Other terms are then made more restrictive to insure that the lender(s) does not lose value. Indeed, many of the mixed announcements indicate that the motive for restructuring the loan is that the borrower has either violated a covenant of the loan agreement or missed an interest payment, or that the borrower will miss a future interest payment if the loan is not restructured. If the borrower's difficulties are not already known by outsiders, a mixed revision contains both positive and negative information. The negative information is that the firm is having financial problems; the positive information is that the bank has decided to restructure the credit agreement so that the firm can continue to operate. However, if the market is already aware of the borrower's problems, the primary new information released by the announcement is that the bank – which presumably has inside information – has decided to continue the loan agreement, albeit with modified terms.

To explore this issue further, we investigate whether the market reacts differently to announcements of mixed revisions depending on whether the potential for default is or is not already publicly known. For each of the 76 mixed-revision announcements, we searched the *WSJI* for the prior year to locate earlier announcements concerning the credit agreement. In 50 of the 76 observations, the *WSJ* previously had published an article indicating that the borrower was in jeopardy of violating one or more of the terms of the agreement. In 26 cases, no prior negative information about the loan is reported by the *WSJ*. Excess returns for these two samples are reported in panel C of table 3.

To a limited extent, the results are consistent with the idea that more positive information is revealed when the bank signals its willingness to continue to work with a firm when it has been previously reported that there is a problem with the loan. For this sample, the announcement-period excess return is +4.82%, which, with a  $z$ -statistic of +4.08, is significantly positive. For the other 26 observations, the average two-day excess return of +2.35% is not significantly different from zero. These results suggest that the market reacts more strongly when the bank signals its intent to continue to work with a client known to be in distress. This type of information signal could be important in helping a struggling firm to continue operations because of its effect on other parties doing business with the firm. However, the average excess returns for the two groups are not significantly different from each other. Of course, in conducting this test, we are relying heavily on information provided by the *WSJ*. In some cases, the security market may have information that a credit agreement is in distress despite the lack of such a report in the *WSJ*. To the extent we have misclassified these announcements, the announcement-period excess return for this sample is biased upward and the power of our test reduced.

#### 5.4. *A closer look at unfavorable revisions*

When credit agreements are revised unfavorably, the action can be initiated by the borrower or by the lender. Announcements in which the borrower cancels the agreement are likely to contain less negative information (or even positive information) than those in which the credit agreement is revised unfavorably by the bank. The sample of 22 unfavorable revisions is divided further into a group of 10 cancellations or reductions initiated by the borrowing firm and a group of 12 unfavorable revisions initiated by the lender. The results for these two samples are reported in panel D of table 3. The excess returns for the two samples are significantly different from each other. For the set in which the loan cancellation is initiated by the borrower, the two-day excess return is an insignificant +0.16; the excess return for the remaining announcements is -7.22% with a  $z$ -statistic of -4.68.

#### 5.5. *New credit agreements*

Except for five cases, all of the firms in our sample that announce new credit agreements had some prior bank financing in place, albeit with a different bank. Thus, just as with loan revisions, the new bank loan can be made on terms that are more or less favorable than those of the old credit agreement. To classify the terms of each new credit agreement as more or less favorable,

we searched the company's annual reports to identify the terms of both the old and the new agreement. We are able to identify both sets of terms for 198 of the 371 new-loan announcements. Among this group, 180 new loans have more favorable terms than the old agreement and 18 have some terms that are more favorable and some that are less favorable. We are able to identify no cases in which all the terms are less favorable than the old agreement. Of the 180 new loans on more favorable terms, 135 are from the set identified as a new loan in the annual report and 58 are from the set for which the annual

Table 4

Average announcement-period excess returns, significance tests, and proportion of positive excess returns for a sample of 198 new bank credit agreements for which the terms of the new and old agreements could be determined for NYSE- and AMEX-listed companies, 1976–1986.

Type of announcement	Number of observations	Announcement-period excess return (%) <sup>d</sup>	<i>z</i> -statistic	Announcement-period proportion of positive excess returns <sup>e</sup>
<i>(A) New credit agreements made on more favorable terms than prior agreement</i>				
All new credit agreements	180	0.17	0.95	0.467
Credit agreements denoted as new in annual reports	135	-0.13	0.14	0.459
Credit agreements with new banks identified in annual reports	58	0.12	0.29	0.466
<i>(B) New credit agreements with a mixture of more and less favorable terms relative to prior credit agreement<sup>a</sup></i>				
All new credit agreements	18	-0.44	0.40	0.389
Credit agreements denoted as new in annual report	12	-0.59	-0.18	0.417
Credit agreements with new banks identified in annual reports	5	0.04	-0.02	0.600
<i>(C) New credit agreements with a mixture of more and less favorable terms relative to prior credit agreement</i>				
No prior negative news <sup>b</sup>	16	-0.56	0.46	0.375
Prior negative news <sup>c</sup>	2	0.50	0.10	0.500

<sup>a</sup>For observations in this subsample, some terms of the new credit agreement are more favorable than those of the old agreement and some terms are less favorable than those of the old agreement.

<sup>b</sup>No negative news concerning the old credit agreement was published in the *WSJ* in the twelve months prior to the revision.

<sup>c</sup>Negative news concerning the old credit agreement was published in the *WSJ* in the twelve months prior to the revision.

<sup>d</sup>No announcement-period excess return is significantly different from zero at the 0.05 level.

<sup>e</sup>No proportion of positive announcement-period excess returns is significantly different from the proportion of positive residuals during the market-model estimation period at the 0.05 level.

report indicates that the new agreement involves a new bank. A similar breakdown of the new loans with mixed terms is 12 and 5, respectively. To parallel loan revisions with mixed terms, new loans with mixed terms are classified according to whether the *WSJ* previously has reported that the borrower was in danger of violating one or more of the covenants of the old credit agreement.

Excess returns for the various categories of new credit agreements are presented in table 4. They are easily summarized: in no case is the announcement-period excess return significantly different from zero. Additionally, for each of the three categories of more favorable new loans (panel A), the excess return is less than the excess return for the sample of favorably revised loans. It is significantly less (at the 0.05 level) for the two largest samples. For each of the three categories of mixed-term new loans (panel B), the excess return is less than the excess return for the sample of mixed revisions. It is significantly less for the two largest samples.

### 5.6. *The bank lending process*

The evidence indicates that the bank lending process works in the following way: When a bank enters into a new credit agreement, it does so with no consequential information advantage over other outside claimholders and, on average, announcements of new loan agreements reveal no information, even if the new loan is on more favorable terms than the firm's old loan. Over time, the bank becomes privy to information not available to outside claimholders, and, based on this information, periodically revises the terms of the credit agreement. If the information available to the bank reflects positively on the firm, the loan can be renewed or revised on terms more favorable to the borrower. This decision sends a positive signal to the market. Alternatively, if the firm is having financial difficulties, the bank can cancel the loan, increase the interest rate, or tighten various protective covenants. This decision signals negative information to the market.

There is a third course of action the bank can take. If the firm is having trouble meeting a particular loan covenant, the bank can restructure the loan to permit the firm to continue operations. The strength of the signal provided by this decision depends on what information was previously available to the market. If the market is already aware of the problem, the stock-price reaction is more positive than if the problem is first revealed publicly by the loan restructuring. In short, the data indicate that the bank loan review and revision process provides useful information to capital-market participants.

The results are not totally satisfying, however. If new loan announcements reveal no information and if information is revealed only as credit agreements are revised, the average announcement-period excess return across all types of

loan revisions should be zero. That is, on average, excess returns around announcements in which credit agreements are revised on more favorable terms should just offset those in which loans are cancelled or revised unfavorably. Contrarily, across all credit agreement revisions, the average announcement-period excess return is positive and statistically significant. One possible explanation for this phenomenon is that there is a reporting bias on the part of the firms or banks. They may be less inclined to announce that performance has been unsatisfactory and that credit agreements have been terminated. An alternative explanation is that in many cases a credit agreement may simply be allowed to expire. Such expirations can represent a negative decision by the bank, but as with dividend omissions, an announcement is not required and our data collection procedure cannot identify such occurrences. The sheer difference in the sizes of our samples lends some support to this conjecture. The sample contains 259 favorably-revised agreements and only 22 that are revised unfavorably.

Bias could also creep into the sample through our screening process. By including only clean announcements, we may have screened out a greater proportion of negative than positive revisions. To investigate the possible impact of such a bias, we generate the announcement-period excess return for the entire sample of 456 clean and contaminated announcements of credit agreement revisions for which return data are available. For this sample, the average announcement-period excess return is +0.81%, which, with a z-statistic of +2.88, is significantly different from zero. Thus, the announcement-period return is smaller when clean and contaminated announcements are used, but it is still significantly positive.

### *5.7. Other explanatory factors*

Our analysis emphasizes the different market reactions to announcements of new and existing credit agreements. However, as the descriptive statistics of table 2 indicate, there are some fundamental differences between new and revised agreements that might also explain the different market reactions. For example, for the new credit agreements, the average amount of the loan divided by the market value of the equity of the borrower is 0.66. For the revised agreements, this ratio is 2.17. Similarly, the average equity values of the firms in the former sample are greater and the maturities of the loans much smaller than those in the latter. As we have discussed, several of the companies with revised credit agreements were confronting substantial financial problems. These firms' equity values are likely to have declined substantially, which will exaggerate the apparent differences between the market values of the firms and the relative sizes of the credit agreements in the two groups. Hence, it is more appropriate to compare the characteristics of firms and loans for



Table 5

Descriptive statistics for a sample of 180 new bank credit agreements made on more favorable terms than the previous agreements and 259 favorably-revised bank credit agreements for NYSE- and AMEX-listed companies, 1976–1986.

Variable	New agreements			Favorably-revised agreements		
	Range	Mean	Median	Range	Mean	Median
Amount of credit agreement (millions of dollars)	3.0–3000	100.7	40.0	2.0–4800	112.3	45.0
Market value of equity <sup>a</sup> (millions of dollars)	2.7–2918	285.8	81.4	1.2–4846	262.7	83.4
Amount of credit agreement/ market value of equity	0.04–3.6	0.62	0.41	0.003–33.5	1.10	0.50
Maturity of credit agreement (years)	0.5–13.0	6.4	7.0	0.1–15.0	5.6	6.0

<sup>a</sup>Number of shares of common stock outstanding multiplied by the market price per share five days prior to announcement of the credit agreement.

favorably-revised credit agreements and those with new loans made on more favorable terms than the previous credit agreement. Descriptive statistics for these two samples are presented in table 5. The differences between the two groups are far less dramatic than those shown in table 2. Still, it is possible that the loans and the firms in the sample of favorably-revised loans differ from those in the sample of new loans, and it is this difference that drives the differences in the announcement-period excess returns for the two groups.

Loans can differ on a number of dimensions. We consider four on which we have data for at least some of the credit agreements: (1) relative size, (2) maturity, (3) whether the loans are secured or unsecured, and (4) structure (whether the loan is a revolving credit agreement or a term loan). The various samples of favorably-revised credit agreements and new loans made on more favorable terms are categorized on these dimensions and announcement-period returns are generated. The results, presented in table 6, panel A through D, do not suggest that the differential in excess returns between new and revised loans is due to any of these characteristics. For the sample of favorably-revised loans, the announcement-period excess return is positive for 10 of the 11 subgroups of loans considered and it significantly greater than zero for 6 of them. Contrarily, for the various samples of new credit agreements, approximately half of the announcement-period excess returns are negative, half are positive, and none is significantly different from zero. Thus, on the basis of univariate tests, the distinguishing characteristic among bank credit agreements – at least so far as the capital-market response is concerned – is whether the agreement is new or revised.

Table 6

Average announcement-period excess returns, significance tests, and proportion of positive excess returns for a sample of 180 new bank credit agreements made on more favorable terms than previous agreements and 259 favorably-revised bank credit agreements for NYSE- and AMEX-listed companies with subsamples based on dollar value, maturity, security, and structure of the credit agreement.

Sample	Number of observations	Announcement-period excess return (%)	z-statistic	Announcement-period proportion of positive excess returns
<i>(A) Classification of samples based on relative value of the credit agreement<sup>a</sup></i>				
All new credit agreements				
Relative value < 0.4	85	-0.13	0.24	0.447
Relative value > 0.4	95	0.44	1.08	0.484
Credit agreements identified as new in annual report				
Relative value < 0.4	63	-0.40	-0.04	0.476
Relative value > 0.4	72	0.11	0.23	0.444
Credit agreements with new banks identified in annual report				
Relative value < 0.4	256	0.56	0.57	0.538
Relative value > 0.4	32	-0.24	-0.12	0.406
Favorably-revised credit agreements				
Relative value < 0.4	99	0.74	1.87	0.576 <sup>c</sup>
Relative value > 0.4	158	0.94 <sup>c</sup>	3.28	0.544 <sup>c</sup>
<i>(B) Classification of samples based on maturity of the credit agreement</i>				
All new credit agreements				
Six years or less	46	0.87	1.69	0.565
Seven years or more	90	-0.20	-0.64	0.411
Maturity unknown	44	0.22	1.11	0.477
Credit agreements identified as new in annual report				
Six years or less	32	-0.19	-0.19	0.420
Seven years or more	69	-0.38	-0.87	0.529
Maturity unknown	34	0.45	1.72	0.600
Credit agreements with new banks identified in annual reports				
Six years or less	18	-0.54	-0.50	0.389
Seven years or more	25	0.37	-0.11	0.440
Maturity unknown	15	0.50	1.27	0.600
Favorably-revised credit agreements				
Six years or less	101	0.38	1.35	0.505
Seven years or more	94	0.66 <sup>d</sup>	2.05	0.574 <sup>c</sup>
Maturity unknown	64	1.97 <sup>c</sup>	3.38	0.609 <sup>c</sup>
<i>(C) Classification of samples based on security supporting the credit agreement<sup>b</sup></i>				
All new credit agreements				
Unsecured	18	-0.29	-0.93	0.444
Secured	13	-0.57	0.42	0.538
Security unknown	148	0.15	1.14	0.459

Table 6 (continued)

Sample	Number of observations	Announcement-period excess return (%)	z-statistic	Announcement-period proportion of positive excess returns
Credit agreements identified as new in annual report				
Unsecured	13	-1.19	-1.76	0.462
Secured	13	0.57	0.42	0.538
Security unknown	109	-0.08	0.62	0.450
Credit agreements with new banks identified in annual report				
Unsecured	6	1.97	0.81	0.667
Secured	7	-0.41	-0.15	0.429
Security unknown	45	-0.05	0.10	0.444
Favorably-revised credit agreements				
Unsecured	33	2.50 <sup>c</sup>	3.49	0.697 <sup>f</sup>
Secured	19	1.10	1.12	0.526
Security unknown	206	0.60 <sup>d</sup>	2.48	0.539 <sup>e</sup>

(D) *Classification of samples based on structure of the credit agreement*

All new credit agreements				
Revolving credit agreement	148	0.11	0.82	0.466
Term loan	20	0.46	0.38	0.400
Structure unknown	12	0.47	0.31	0.583
Credit agreements identified as new in annual report				
Revolving credit agreement	114	-0.19	0.15	0.456
Term loan	12	-0.23	-0.54	0.333
Structure unknown	9	0.87	0.66	0.667
Credit agreements with new banks identified in annual report				
Revolving credit agreement	47	0.17	0.47	0.468
Term loan	6	-0.47	-0.59	0.333
Structure unknown	5	0.32	0.20	0.600
Favorably-revised credit agreements				
Revolving credit agreement	222	1.05 <sup>c</sup>	4.19	0.581 <sup>f</sup>
Term loan	25	-0.39	-0.47	0.400
Structure unknown	12	0.25	0.11	0.417

<sup>a</sup>Relative value is the dollar value of the agreement divided by the market value of the firm's common equity five days before to the announcement. The amount of the agreement is unknown for one new agreement and two favorably-revised agreements.

<sup>b</sup>One new agreement and one favorably-revised agreement were guaranteed by a government or government agency. Those observations are not included in any of these subsamples.

<sup>c</sup>Announcement-period excess return is significantly different from zero at the 0.01 level.

<sup>d</sup>Announcement-period excess return is significantly different from zero at the 0.05 level.

<sup>e</sup>Proportion of positive announcement-period excess returns is significantly different from the proportion of positive residuals during the market-model estimation period at the 0.05 level.

<sup>f</sup>Proportion of positive announcement-period excess returns is significantly different from the proportion of positive residuals during the market-model estimation period at the 0.01 level.

### 5.8. Multivariate analysis

To further examine factors that might affect announcement-period returns, we estimate three multivariate regressions for the 259 announcements of favorably-revised loans combined with the samples of 180, 135, and 58 announcements concerning new loans on more favorable terms than the firm's prior credit agreement. In each regression the dependent variable is the announcement-period excess return and the independent variables are:

Four dummy variables, each indicating whether there is information on a particular characteristic of the credit agreement. The four characteristics are (i) the dollar value of the credit agreement, (ii) the maturity of the loan, (iii) whether the loan is secured or unsecured, and (iv) whether the credit agreement is a revolving facility or a term loan. If information regarding a characteristic is available, the respective dummy variable has a value of 1; otherwise it is zero.

Four dummy variables, each describing a characteristic of the credit agreement. The four characteristics are (i) whether the credit agreement is unsecured (coded as a 0) or secured (coded as a 1), (ii) whether the agreement is guaranteed by either a government or government agency (0) or not (1), (iii) whether the loan is revolving (0) or term (1), and (iv) whether the announcement is of a new credit agreement (0) or a revision to an existing agreement (1).

Two continuous variables measuring (i) the logarithm of the maturity of the credit agreement and (ii) the ratio of the dollar value of the credit agreement to the market value of the common equity of the firm.

The basic model is

$$ER_i = B_0 + \sum_i B_i X_i + \varepsilon_i,$$

where  $ER_i$  is the two-day excess announcement return for firm  $i$ ,  $B_0, \dots, B_{10}$  are the regression coefficients,  $X_1, \dots, X_{10}$  are the variables described above, and  $\varepsilon_i$  is the disturbance term with zero mean. Because cross-sectional stock returns exhibit heteroskedasticity, both sides of the regression equation are divided by  $s_i$ , where  $s_i$  is the standard deviation of the prediction derived from the market-model estimation. The revised regression equation is

$$SER_i = B_0/s_i + \sum_i B_i X_i/s_i + \varepsilon_i/s_i,$$

Table 7

Results of regression of standardized excess returns on various standardized continuous and dummy variables for sample of 180 new bank credit agreements made on more favorable terms than the previous credit agreement and 259 favorably-revised bank credit agreements for NYSE- and AMEX-listed companies, 1976–1986 (*t*-statistics in parentheses).

Variable	Coefficient of variable in percent		
	Favorably-revised agreements and all new agreements on more favorable terms than prior agreement	Favorably-revised agreements and new credit agreements on more favorable terms than prior agreement and identified as new in annual report	Favorably-revised agreements and new credit agreements on more favorable terms than prior agreement, and new bank identified in annual report
Number of observations	439	394	317
New or revised (0 if new, 1 if revised)	0.41 (1.37)	0.49 (1.83) <sup>c</sup>	0.46 (1.13)
Unknown if secured (0 if unknown, 1 if known)	0.24 (0.46)	0.18 (0.34)	1.18 (1.97) <sup>c</sup>
Government guaranteed (0 if guaranteed, 1 if not guaranteed)	-0.87 (-0.31)	2.20 (0.65)	2.10 (0.62)
Secured (0 if unknown or unsecured, 1 if secured)	-0.10 (-0.12)	0.05 (0.06)	-1.02 (-1.08)
Unknown structure (0 if unknown, 1 if known)	0.83 (1.18)	0.73 (0.89)	0.89 (0.92)
Revolving or term loan (0 if revolving or unknown, 1 if term)	-0.45 (-1.35)	-0.70 (-1.99) <sup>c</sup>	-0.42 (-1.06)
Unknown maturity (0 if unknown, 1 if known)	-0.21 (-0.23)	-0.63 (-0.67)	-0.42 (-0.43)
Standardized log of maturity (0 if unknown) <sup>a</sup>	-0.13 (-0.29)	-0.01 (-0.03)	-0.10 (-0.22)
Unknown amount of agreement (0 if unknown, 1 if known)	1.09 (0.38)	-1.43 (-0.41)	-1.83 (-0.52)
Standardized relative value of agreement (0 if unknown) <sup>b</sup>	0.30 (1.70) <sup>c</sup>	0.27 (1.51) <sup>c</sup>	0.25 (1.36)
<i>R</i> -squared	0.02	0.03	0.03

<sup>a</sup> Computed as log of the maturity of the credit agreement divided by estimated standard error of two-day return.

<sup>b</sup> Computed as amount of the credit agreement divided by the market value of equity, and divided by estimated standard error of two-day return.

<sup>c</sup> Coefficient is significantly different from zero at the 0.10 level.

where  $SEER_i$  is the standardized announcement-period excess return for announcement  $i$ .

The regression results are presented in table 7. The coefficient of the dummy variable indicating whether the loan is a revision or new is positive in each regression, but is significantly greater than zero at only the 0.09, 0.04, and 0.13 levels, respectively, for the three samples. Thus, the results are consistent with (albeit at weak levels of significance) the hypothesis that announcements of favorably-revised bank credit agreements provide a positive signal to outside claimholders and that announcements of new bank loans do not.

## 6. Summary and conclusion

Previous documentation, by James (1987) and Mikkelson and Partch (1986), of positive excess stock returns surrounding announcements of bank credit agreements appears to show that banks are a unique source of corporate financing. Our analysis suggests another interpretation of the data. When a sample of bank loan announcements is split into those concerning new credit agreements and those concerning revisions to existing agreements, the former set has virtually no impact on stock prices, while the latter group has a significant excess return of +1.24%. The absence of a significant market reaction to announcements of new bank loans is consistent with studies that report an insignificant market reaction to the announcement of new public debt issues and new private placements of debt.

Further analysis of the sample of credit agreement revisions indicates that, as suggested by Fama (1985), the bank loan review and renewal process plays an important role in transmitting information in capital markets. Announcements of favorable loan renewals and revisions are accompanied by a stock-price increase, while announcements of loan reductions and cancellations are accompanied by a stock-price decline. Further, when the loan cancellations are initiated by the bank, the stock-price reaction is even more negative than average, whereas when the cancellation is initiated by the borrower, there is no stock-price response. This result indicates that it is the action of the bank, rather than the borrower's decision about the use of debt, that signals information.

Finally, the strongest positive stock-price response is associated with announcements of loan renewals for which previously-published information indicated that the loan was in trouble. Typically, these announcements involve a restructuring of the loan that will allow the borrower to avoid technical default. In exchange, the bank receives additional security or a higher interest rate. In either case, the bank – presumably on the basis of inside information – is signaling its intent to continue to work with the borrower. Apparently, the market interprets this as a very positive signal.

The analysis leaves us with one unsatisfying result. If investors form unbiased expectations and if the loan renewal process is only signaling borrowers' creditworthiness, the average stock-price response across all announcements of credit agreement revisions should be zero. For our sample, the average response is significantly positive, suggesting that either our sample selection procedure is biased or that loan renewals and revisions, on average, create value. The problem with the second interpretation is that, if the renewal and revision process creates value and if investors form unbiased expectations, value should be capitalized when new loans are announced, and the average stock-price response at the initiation of the loan should be positive and significant. It is not. We are thus led to the conclusion that our sample selection procedure is biased, probably because firms and banks are less likely to announce negative than positive information.

Our results do not support the contention the banks are unique in the sense that they possess a competitive advantage over other lenders in making credit decisions at the outset of a loan. At least any uniqueness in the bank credit decision process does not manifest itself in a stock-price reaction for corporate borrowers when the establishment of a credit agreement is announced. However, the results do support the view that decisions made by banks as a result of a continuing lending relationship with a corporate borrower serve as influential signals of firm value. Thus, the results indicate that banks are important and credible transmitters of firm-specific information to the capital market.

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