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Are Bank Loans Special? Evidence on the Post-Announcement Performance of Bank Borrowers

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Abstract

Unlike seasoned equity or public debt offerings, bank loan financing elicits a significantly positive announcement return, which has led financial economists to characterize bank loans as "special." Here, we find that firms announcing bank loans suffer negative abnormal stock returns over the subsequent three years. In the long run, bank loans appear no different from seasoned equity offerings or public debt issues. Our evidence suggests that larger loans (relative to borrower equity) are followed by worse stock performance. We also find that lender protection is negatively related to borrower performance, suggesting the lender is somewhat shielded from the poor performance.

I. Introduction

Myers and Majluf (1984) argue that a firm's decision to issue external securities instead of using internally generated funds may indicate that insiders consider the firm to be overvalued. Asymmetrically informed outside investors will then make valuation inferences based on how insiders choose to raise capital. The degree of inferred overvaluation increases in the sensitivity of the offered security's value to the asymmetric information. For example, an equity issue signals greater overvaluation than a bond issue, and convertible bonds should reflect more negative information than straight bonds. Short-term event studies largely support this "lemons" model of security valuation. The announcement of a seasoned equity offering (SEO) results in an average stock price decline of 2%–3% (Asquith and Mullins (1986), Masulis and Korwar (1986), and Bayless and Chaplinksy (1996)), while announcements of public bond issues generate zero or slightly negative equity returns (Eckbo (1986), Jung, Kim, and Stulz (1996), and Howton, Howton, and Perfect (1998)).[1]

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[1]Ritter ((2002), Table 5) summarizes many other studies of the impact of financing decisions on firm equity value.

One form of external finance has been considered special: loans from commercial banks. Unlike the announcement effects of public security issues, bank loan announcements generate significantly positive abnormal returns for the borrower (Mikkelson and Partch (1986), James (1987), Lummer and McConnell (1989), and many others). A large body of theoretical work compares the benefits of private debt (e.g., bank loans) to arm's-length (public) borrowing. Institutional lenders are generally viewed as insiders, who may enhance a borrowing firm's value by reducing information asymmetries or by monitoring firm performance (Bernanke (1983), Fama (1985), Berlin and Loeys (1988), and Kwan and Carleton (1998)). The combination of private lending's theoretical benefits and the empirical fact that bank loans elicit positive announcement effects has led to the labeling of private loans as "special" or "unique" among a firm's financing alternatives (Boot (2000), Ongena and Smith (2000)).

Although the short-run valuation effects of security issuances are consistent with the existing theory of asymmetrically informed outside investors, recent work on the long-run performance following security issuance has raised doubts about interpreting event study outcomes. Numerous studies document substantial underperformance during the three–five years following firm security issuances. Specifically, the issuing firms' share prices underperform the relevant benchmarks by 4% to 10% per year. At face value, these results have grave implications for the notion of market efficiency: they imply that market investors initially underreact to the implications of public security issuances.

While long-term performance following public security issuance has been thoroughly examined, the long-run performance of firms following private debt agreements is relatively unexplored. Yet private debt constitutes a very important source of credit for the economy. Bank loans alone provide approximately 30% of all U.S. nonfinancial corporations' outstanding liabilities.[2] In bank-centered financial systems, this proportion is surely much higher. Moreover, the size of a typical loan agreement indicates the potential for a dramatic effect on firm performance. In our sample, the mean (median) ratio of loan size to borrower's market value of equity is 65.2% (26.9%) for the period 1980–2000. By comparison, Spiess and Affleck-Graves (1999) report that the mean (median) ratio of bond issue size to the market value of equity is 53.64% (28.86%) during their 1975–1989 sample period.

This paper reexamines the uniqueness of bank loans from three distinct long-run perspectives. First, we examine the borrowers' long-run stock return performances following bank loans. Measurement of long-run abnormal returns has been a contentious topic in the finance literature. We therefore evaluate post-loan performance using a variety of techniques, including buy-and-hold abnormal returns (BHARs), Fama-French alphas, and calendar time abnormal returns (CTARs). Although the estimated underperformance varies across measurement techniques, we generally find economically and statistically significant underper-

[2]Data is from the Federal Reserve *Bulletin*, table 1.59 and is for the year 1996 (the first year bank loan data is reported). For comparison, corporate bonds accounted for 47% of corporate credit in 1996. Note that nonbank loans are not included in these figures, nor are undrawn lines of credit. Private lending therefore accounts for far more than 30% of all U.S. corporate credit.

formance in the wake of bank loans. In other words, bank loans appear to be quite similar to other forms of external finance.

Second, we study the transparency of borrowers at earnings announcements. Many researchers have attributed positive bank loan announcement effects to the hypothesis that banks help solve their borrowers' asymmetric information problems. Following Dierkens (1991) and Krishnaswami and Subramaniam (1999), we measure information asymmetry as the standard deviation of a time series of abnormal returns to quarterly earnings announcements. If banks mitigate asymmetric information problems, we should find less volatile price reactions to earnings announcements in the post-loan era. In fact, we see the opposite. First, compared to a set of control firms, bank borrowers exhibit more volatile responses to their earnings announcements. Second, rather than mitigating the borrowing firms' information problems, we find that earnings announcement returns are significantly more volatile post-loan than pre-loan. We conclude that bank loans do not reduce information asymmetries for the borrowers.

Our third perspective follows Loughran and Ritter (1997) who document negative operating performance following SEOs. We undertake a similar analysis for our sample borrowers. We find that bank borrowers perform poorly in the year before announcing their bank loan, and that this poor performance continues for three years after the loan announcement, again suggesting strong similarities between loan announcements and SEOs.

Finally, we investigate some potential determinants of long-run underperformance. Specifically, we find that larger loans (relative to the borrower's equity) are followed by worse returns over the subsequent three years. By contrast, Lummer and McConnell (1989) report larger, positive announcement returns for larger loans, presumably because investors believe that larger loans have a bigger economic effect. The long-run returns suggest that bank loans are not particularly unique forms of financing.

These empirical findings raise an important question about the lenders: why would they lend to future poor performers?[3] Perhaps the lending bank does not anticipate poor performance. Alternatively, the bank may be able to insulate its (senior) loan payoff from poor equity performance. We find that larger loans are followed by a larger increase in operating performance despite their more negative equity returns. Further, firms with secured loans bearing high contract rates (spreads) exhibit a more positive change in operating performance than other borrowers, even while their equity performance is worse. This suggests that while the stock suffers, the overall performance at the firm level actually improves for the larger loans and for the loans with greater lender protections. Under these circumstances, it seems unlikely that the loan itself would share the equity's poor performance.

In addition to providing new information about the effects of bank lending, our evidence contributes to the general literature on market efficiency. Prior long-run returns studies essentially document underreaction to corporate events: a negative announcement return deteriorates further. The literature contains scant evidence of reversal from significant announcement returns in one direction to

[3]We thank the referee for suggesting that we address this question.

significant long-run returns in the opposite direction. Yet this is precisely what we find. Not only do bank loans exhibit positive average announcement effects followed by negative average long-run returns, but the subset of bank loans with strictly positive announcement returns is also followed by significantly negative long-run returns. Apparently, the market is not only initially wrong about the magnitude of the loan's effect on firm value, but it also gets the direction wrong.

The remainder of this paper is organized as follows. Section II discusses the methodological issues associated with long-run performance measurement. Section III describes our data sources. Our results are presented in Sections IV through VII, and the final Section concludes.

II. Measuring Long-Run Equity Returns

The literature on long-run stock performance following corporate events is extensive, largely because accurately measuring "normal" returns over long periods of time has proven to be extremely challenging. The literature includes two basic approaches to this problem. First, one can identify a comparable, nonborrowing firm for each loan announcer and follow the pair's relative performance over time. Second, one can use an asset pricing model to predict the announcing firm's normal returns, and examine the differences between the event sample's predicted and actual returns. Both approaches suffer some shortcomings, and we use a combination of methods to assure that our results are robust.

Early studies of long-run performance simply extend event study techniques to a longer horizon, comparing the announcing firms' returns to those of a reference portfolio (such as the value-weighted market). Kothari and Warner's (1997) simulation evidence suggests that both the size and power of these parametric tests are overstated. A major problem arises because abnormal returns computed by subtracting benchmark portfolio returns from an individual security's returns tend to be substantially skewed. Barber and Lyon (1997) reiterate the importance of this skewness, and describe additional potential biases that may arise from new listings and market portfolio rebalancings.

A. Buy-and-Hold Abnormal Returns

These statistical problems can be ameliorated by using peer-adjusted BHARs to measure long-run performance effects, as in Ritter (1991). Barber and Lyon (1997) report that peer firms with similar market capitalization and equity's book-to-market ratio perform well in randomized samples.

For each loan-announcing firm, we select a peer firm that resembles the sample firm except for the announcement of loan financing. We then compute each firm's subsequent holding period return (HPR) as

$$\text{HPR}_i = \left(\prod_{t=1}^{T_i} (1 + R_{it}) - 1 \right) \times 100\%,$$

where R_{it} is the ith firm's stock return on the tth day, and T_i is the number of trading days in the three-year period following the loan announcement.

After calculating HPR for each sample firm and for its matching firm, we evaluate the difference, a stylized investor's BHAR,

$$\text{BHAR}_i = \text{HPR}_i^{\text{Event}} - \text{HPR}_i^{\text{Peer}},$$

to determine if loan-announcing firms exhibit distinctive performance.[4] Lyon, Barber, and Tsai (1999) point out that BHAR test statistics may be biased if peer firms are not matched on the basis of all relevant characteristics (such as industry or pre-event returns). To correct for clustering on the basis of non-matched characteristics, they suggest using a variety of alternative peer choice criteria, which we do (see Section III).

B. Calendar Time Abnormal Returns

Another type of clustering occurs if firms take similar actions at the same time (e.g., merger waves or the issuance of new equity following a market price run-up).[5] Each sample firm's BHAR then tends to be correlated with other BHARs, thereby overstating the significance of the resulting test statistics. To control for the calendar time event-clustering problem, Mitchell and Stafford (2000) suggest creating a sequence of calendar time portfolios. Each month, the researcher forms a portfolio containing all the firms that announced the event within the last (say) three years. These calendar time portfolio returns may then be evaluated in either of two ways. First, compare the monthly portfolio returns against the returns on a portfolio of comparable firms (Mitchell and Stafford (2000)).[6] Second, regress the calendar time portfolio's time series of (excess) returns on Fama and French's (1993) three factors. The intercept from this regression then measures abnormal performance.

To implement several CTAR tests, we begin by forming a portfolio containing all firms that announced a loan agreement within the past 36 months, and calculate the portfolio's return in that month. We then regress a time series of these monthly portfolio returns, net of the risk-free rate, on the three Fama-French factors,

$$(1) \qquad (R_{pt} - R_{ft}) = \alpha + \beta(R_{mt} - R_{ft}) + s\text{SMB}_t + h\text{HML}_t + \varepsilon_t,$$

where R_{pt} is the return on the portfolio of sample firms in month t, R_{ft} is the three-month T-bill yield in month t, R_{mt} is the return on the value-weighted index of NYSE, Amex, and NASDAQ stocks in month t, SMB_t is the return on small firms minus the return on large firms in month t, and HML_t is the return on high book-to-market stocks minus the return on low book-to-market stocks in month t. A

[4]BHARs measure an investor's experience if he were to try to profit from expected underperformance (Barber and Lyon (1997)).

[5]Similar calendar time event occurrence can be driven by either of two factors. First, different firms may all tend to experience the event around the same time (for example, firms like to issue seasoned equity following a long price run-up). Alternatively, the same firm may have multiple events in close time proximity. The second occurrence therefore falls during the long-run return calculation window that followed the first occurrence. According to Lyon, Barber, and Tsai (1999), the first situation causes little trouble for peer-adjusted returns, but multiple firm events can have more serious consequences.

[6]This approach is not dissimilar from the one advocated by Vijh (1999), which we also employ.

significant intercept term in (1) implies that abnormal returns are associated with the event analyzed.

Fama ((1998), p. 299) and Mitchell and Stafford ((2000), pp. 324–325) argue that the Fama-French three-factor model performs especially poorly for small firms and high book-to-market firms. Loughran and Ritter (1995) note that if the abnormal returns indicated by the Fama-French model reflect a bad model, significant intercept terms should also occur for the peer firm. We therefore estimate Fama-French regressions for the portfolio of peer firm returns, and compare the intercept (α) to that from the event firms' regression.

Another concern with the Fama-French regression approach is its assumption of parameter stability over the entire estimation window (Mitchell and Stafford (2000)). We address this possible problem by implementing Vijh's (1999) treatment of calendar time portfolios. Specifically, we first compute the monthly returns on the portfolio of loan-announcing firms. We then subtract the monthly returns on a similar portfolio of peers to obtain monthly excess returns. We calculate a t-statistic for the average of these monthly excess returns using the time-series standard deviation of annual excess returns over our sample period.

III. Data

We use the set of loan announcements collected in Billett, Flannery, and Garfinkel (BFG) (1995). Their keyword search of news stories identifies 1,468 announced loan agreements between nonfinancial borrowers and bank or nonbank lenders during the calendar years 1980 through 1989. We augment this sample with all loans contained in the Loan Pricing Corporation (LPC) database. The LPC sample begins in 1988 (though coverage is weak until 1990) and continues through early 2000. One key difference between these two sources is the BFG sample requires that the loan be announced in the popular press while the LPC loan sample does not. Thus, the LPC sample is much larger even though it spans a similar number of years. On the other hand, many of the LPC loans will not be announced in the press, suggesting they are less significant. As we show below, one proxy for the significance of the loan (its relative size) has important implications for ex post performance. We match the borrowing firms against the CRSP master file to collect the announcing firm's equity market value at the preceding calendar year-end. Equity's book value at the preceding fiscal year-end, if available, is taken from Compustat.[7] Our main sample ends up with 10,619 loans from 1980–2000.

The sample's summary statistics in Table 1 reveal several noteworthy points. First, loan agreements are significant external financing events: the average loan or commitment size is 65.15% of the firm's market value of equity. Second, loan announcers tend to be small firms: the median market value of equity for our sample of firms is $268 million. Viewed another way, the mean (median) size

[7]BFG's concern with short-run announcement effects required them to impose additional requirements on their loan announcements, resulting in their "clean" subsample of 626 announcements with live share prices and no confounding events around the announcement date (e.g., merger discussions or new investment programs). Our long-term focus here permits us to use their entire announcement sample.

decile (based on NYSE cuts) for our sample of firms is 3 (2) with more than one quarter of our sample belonging to decile 1.[8] Third, our average firm resembles the average Compustat firm (which tends to be small) in terms of average growth potential: the median sample firm's market to book equity ratio is 2.11, while the corresponding Compustat universe's median value is 1.58 over the period 1980–2000. The mean market-to-book asset ratios are a bit farther apart with our sample mean equal to 1.91 and the Compustat mean equal to 3.7. Overall, univariate statistics are consistent with the traditional view that bank borrowers tend to be smaller firms with relatively valuable growth opportunities.

TABLE 1

Descriptive Statistics for Sample of Loan Announcements

The sample includes 10,619 loan agreements announced between 1980 and 2000 on the Dow Jones News Retrieval Service (DJNRS) or listed on LPC by firms on CRSP or NASDAQ with valid market value of equity and loan size data. Market cap = borrower's market value of equity at the calendar year-end preceding the loan announcement. Relative loan size is loan amount divided by market cap. Firm size is measured by the (NYSE) size decile of the borrower's market value of equity. Decile 1 contains the smallest firms and Decile 10 contains the largest.

	Mean	Median	Min.	Max.	Std. Dev.	*N*
Loan size ($ million)	296.04	81.66	0.085	21539	828.6	10,619
Market cap ($ million)	2505.3	268.1	0.160	333438	10323.3	10,619
Book equity/market equity	0.522	0.473	−182.38	16.16	2.63	10,619
(NYSE) size decile	4.3	3	1	10	3.02	10,619
Relative loan size	65.15%	26.94%	0.03%	178%	286.4%	10,619

Using a sample comprised largely of small firms offers both benefits and costs. An obvious concern with this type of sample is that the expected returns to small, high growth firms may be poorly described by available asset pricing models (Fama and French (1993), Fama (1998)). This would potentially bias long-run performance assessments. We address this possibility by utilizing a variety of return measurements and several distinct criteria for identifying peer firms. On the other hand, small firms are generally thought to be subject to greater information problems. Since bank loan "specialness" is often attributed to banks' abilities to reduce information asymmetries, our sample offers an excellent opportunity to evaluate this claim.

Defining Peer Firms

The definition of peer firms is crucial in long-run performance measurement. Following the literature standard, our primary match is on size and book-to-market equity. However for robustness, we also construct several alternative sets of peer firms on the basis of firm size, industry (2-digit SIC code) and/or momentum. In all cases, we select the peer firm from the same trading venue as the event firm: NYSE/AMEX vs. NASDAQ. We now describe the matching process in detail for size and book-to-market equity-based matches. The other samples are generated analogously.

Size and book-to-market equity-matched peer firms must resemble their event counterparts in terms of size and book-to-market ratio. We first discard any sample firm for which Compustat reports non-positive book equity at the fiscal year-

[8]Decile 1 is the smallest and decile 10 the largest.

end preceding the loan announcement. For the remaining borrowers, we follow Spiess and Affleck-Graves (1999) in identifying all other firms that trade on the same exchange whose equity market value lies within 10% of the sample firm's at the prior year-end.[9] The chosen peer has the smallest sum of the absolute percentage differences in size and book-to-market equity value, using data from the preceding year.

Table 2 reports summary statistics illustrating how well peer firm characteristics match those of the event firm. The median absolute percent difference in size plus book-to-market equity characteristics is 6.83%. The mean is larger, at 35.32%, indicating skewness. More than three-quarters of our matches have summed differences below 12%. Since we require the size match to be within 10%, the larger deviations reflect a poor match on book-to-market equity. When we match on both industry (2-digit SIC code) and size, our mean (median) size difference is 6.54% (4.39%). Finally, the size and momentum match is weakest in the median with an absolute difference (in summed characteristics) of 12.37%.

TABLE 2

Peer Matching Quality

Matching procedure is indicated in the text. Abs. Diff. is the absolute value of the percentage difference between the sample firm's match criteria and the peer firm's match criteria. In the case of multiple ordinal criteria, the measure is the sum of the absolute percentage differences. Mean and median are cross-sectional.

Match Criteria	No. of Event Firms with Matches	Median Abs. Diff.	Mean Abs. Diff.
Size, B/M	9,730	6.83%	35.32%
Size alone	9,730	0.19%	0.45%
2-digit SIC, size	7,882	4.39%	6.54%
Size, momentum	9,728	12.03%	28.11%

A peer selection methodology must handle delistings that occur before the end of the performance measurement window. The peer firm is delisted within three years of the event date for 14% of our size and book-to-market matched pairs (1,366 out of 9,733). On these delisting dates, we switch the peer return series to that of the sample firm's second-closest matching firm (as of the event date). If an announcing firm's second peer was delisted, we continue the computations using its third-closest peer, and so forth. Conversely, a sample firm was delisted within three years of the loan 2,204 times out of 9,733 observations (22.6%). In these cases, we terminate the computations for both firms in the pair.

Examining the reasons for either sample firm or peer firm delisting, we find that mergers were associated with 65.2% and 63% of delistings for peer and sample firms, respectively. Also, 33.2% and 35.9% of peer and sample firm delistings resulted from an exchange (NYSE/AMEX/NASDAQ) dropping the issue. Liquidations were rather infrequent, representing 0.1% and 0.2% of the peer and sample firm delistings. The remaining delistings (1.3% of peer firms and 0.8% of sample firms) involved exchanges for a different issue trading on NYSE, AMEX, or NASDAQ.

[9]We require a 10% (or better) size match in order to avoid a problem identified by Barber and Lyon (1997), who find that substantial size differences make the event and peer firms differ in their subsequent equity performance. Large firms are most likely to be affected (excluded) by this 10% requirement.

IV. Long-Run Return Results

A. BHAR Analysis

Firms obtaining loans are similar to SEO and public debt issuers in their future underperformance. Table 3 compares borrowers' BHARs to those of their peers. In Panel A, the first line reports that loan-announcing firms underperformed their size and book-to-market equity-matched counterparts after announcing a loan agreement. Both the mean (−32.7%) and median (−10.3%) three-year BHARs are significantly negative, with 99% confidence. Similar results obtain for our three alternative sets of peer firms, based on i) size alone, ii) SIC code and size, and iii) size and momentum. Despite bank loans' well-known positive announcement effect, they are associated with significant long-run underperformance. Indeed, loans seem to generate a more negative impact than public debt offerings: Spiess and Affleck-Graves (1999) report a mean BHAR of −14.3% during the five years after a straight bond is issued, and their mean return does not differ significantly from zero.

TABLE 3

Distribution of Three-Year Abnormal Returns Following Loan Agreements (1980–2000)

Holding period returns (HPRs) are calculated as the cumulative daily return from the day following the loan announcement to three years following the announcement date. For sample firms that are delisted before the three-year anniversary of the offering, the HPR is calculated until the delisting date, and the corresponding matched firm's return is calculated over the same truncated period. If the matched firm is delisted, the next closest matched firm's return is used. Size and B/M equity-matched firms are chosen on the basis of size and B/M ratio from stocks trading on the same exchange (NYSE, AMEX, or NASDAQ). BHAR is the buy-and-hold abnormal return defined as the sample firm's HPR less the peer firm's HPR. Indications of significance of medians are based on the Wilcoxon signed-rank test.

Panel A. BHARs

Matching Criteria	Mean BHAR	Median BHAR	*N*
Size, B/M	−32.723%***	−10.349%***	9,730
Size alone	−33.327%***	−10.498%***	9,730
SIC, size	−28.868%***	−9.710%***	7,882
Size, momentum	−26.152%***	−6.749%***	9,728

Panel B. BHARs (Size and B/M matched peers) by Firm Size Decile

Firm Size Decile	Mean BHAR	Median BHAR
1 (smallest)	−25.67%***	3.46%
2	−33.66%***	−2.21%***
3	−38.56%***	−13.58%***
4	−32.70%***	−11.23%***
5	−33.01%***	−8.83%***
6	−24.07%***	−10.97%***
7	−28.56%***	−15.25%***
8	−33.05%***	−13.91%***
9	−28.89%***	−18.17%***
10 (largest)	−37.66%***	−26.82%***

***indicates significance at the 1% level.

Panel B of Table 3 reports mean and median BHARs by size decile of the announcing firm (deciles are based on cutoffs from all firms on the NYSE). In each of the 10 deciles, we find double-digit mean underperformance, significant at the 1% level in every case. The medians are significantly negative in all deciles except the smallest, which is insignificantly different from zero. This suggests that underperformance following a loan announcement is not limited to small firms.

B. Calendar Time Portfolio Analysis

We address the possible effects of calendar time event clustering in Table 4, which reports the intercept terms (alphas) from regressing event portfolio excess returns on the three Fama-French factors. As noted above, these intercepts measure the average monthly abnormal return associated with the bank loan announcements. We present results based on both equal- and value-weighted event portfolios.

Panel A of Table 4 indicates that our sample borrowing firms' estimated intercepts are significantly negative. When equal-weighted, the borrowing firms' subsequent abnormal returns average −0.47% monthly ($t = -3.46$). When the event portfolios are value-weighted, the estimated α is −0.27% ($t = -2.30$). In other words, borrowing firms underperform by 3.2%–5.5% annually over the three years following their loans with a confidence level exceeding 95%.

TABLE 4

Calendar Time Approach Monthly Abnormal Returns over Three Years

We estimate the Fama-French (time-series) model of monthly portfolio returns,

$$(R_{pt} - R_{ft}) = \alpha + \beta(R_{mt} - R_{ft}) + s\text{SMB}_t + h\text{HML}_t + \varepsilon_t,$$

where R_{pt} is the return on the portfolio of sample firms in month t; R_{mt} is the return on the value-weighted index of NYSE, AMEX, and NASDAQ stocks in month t; R_{ft} is the 3-month T-bill yield in month t; SMB_t is the return on small firms minus the return on large firms in month t; and HML_t is the return on high book-to-market (B/M) stocks minus the return on low B/M stocks in month t. The factor definitions are described in Fama and French (1993). Sample firm returns are included in a particular monthly portfolio if the firm's loan date occurred within the last 36 months. All t-statistics use White's (1980) corrected standard errors. CTARs are returns to the portfolio of sample firms (constructed exactly as above), minus returns to the portfolio of peers matched on size and B/M equity.

Category	Equal-Weighted Portfolio Returns	Value-Weighted Portfolio Returns
Panel A. Borrowing Firms' Abnormal Returns		
Sample Firms	−0.47% ($t = -3.46$)	−0.27% ($t = -2.30$)
Panel B. Peer Firms' Abnormal Returns		
Peer Category		
Size, B/M	0.06% ($t = 0.54$)	−0.02% ($t = -0.24$)
Size alone	0.13% ($t = 1.14$)	−0.10% ($t = -0.27$)
SIC, size	−0.02% ($t = -0.13$)	0.03% ($t = 0.27$)
Size, momentum	0.01% ($t = 0.11$)	−0.11% ($t = -0.97$)
Panel C. Borrowing Firms Minus Peers		
Sample–Size, B/M	−0.54% ($t = -5.20$)	−0.24% ($t = -2.36$)
Sample–Size	−0.60% ($t = -5.75$)	−0.17% ($t = -1.56$)
Sample–SIC, size	−0.46% ($t = -5.10$)	−0.30% ($t = -3.03$)
Sample–Size, momentum	−0.49% ($t = -5.32$)	−0.16% ($t = -1.75$)
Panel D. Monthly CTARs		
Peer Category		
Size, B/M	−0.43% ($t = -4.35$)	−0.20% ($t = -2.09$)
Size alone	−0.49% ($t = -4.46$)	−0.08% ($t = -0.76$)
SIC, size	−0.31% ($t = -3.25$)	−0.25% ($t = -2.43$)
Size, momentum	−0.35% ($t = -3.75$)	−0.11% ($t = -1.20$)

A common concern with the three-factor model is that the negative intercepts may reflect a bad model. If our borrowing firms tend to have features that are poorly fit by the model, we should also find negative intercepts for the set of peer firms. The four lines in Panel B of Table 4 present estimated αs for the various sets of peer firms. These intercept terms are all small and statistically insignificant, consistent with the hypothesis that loan agreements themselves are associated with the poor performance manifested in Panel A. Moreover, when

we estimate the three-factor model on peer-adjusted monthly abnormal returns to bank borrowers, our conclusions are quite similar. Panel C of Table 4 presents these results for four alternative sets of peer firms. In the equal-weighted case, the estimated peer-adjusted intercepts are all negative with 99% confidence, implying average annual underperformance on the order of 5.4%–7.0%. In the value-weighted case, we find significant underperformance when peer firms are selected on the basis of size and book-to-market, on the basis of SIC code and size, and on the basis of size and momentum. We find a negative, but insignificant, intercept when peers are selected on size alone.

Panels A through C of Table 4 suggest that differences in factor sensitivities do not drive the measured underperformance of bank loan borrowers relative to peers' firms. There remains the question of whether the parameters in the Fama-French model are stationary across 24 years of data. Vijh (1999) provides an alternative way to control for calendar time clustering, which ameliorates concerns about the Fama-French regressions' assumed 24-year parameter constancy. Panel D of Table 4 presents the estimated CTARs constructed as the difference between sample firms' monthly portfolio returns and the peers' portfolio returns. The results mirror those in Panel C for the peer-adjusted Fama-French regressions. Under equal weighting, borrowing firms significantly underperform all four sets of peers, 3.7% to 5.7% per year. For value-weighted portfolios, borrowing firms significantly underperform two sets of peers (those matched on size and book-to-market and those matched on industry and firm size. Estimated long-run performance is negative, but not statistically significant for the other two sets of peers. This is perhaps unsurprising since the quality of matches is poorest (in the median) for size and momentum, and pure size matching permits large differences in other firm characteristics, most notably the book-to-market ratio.

C. Reversal of Announcement Returns

Tables 3 and 4 indicate that firms entering loan agreements underperform in the three years following the event. Yet we also know that loan announcements routinely elicit positive short-run stock returns. It therefore appears that we have documented the first robust evidence of return reversals.[10] We examine this issue more closely with the subset of our data from the 1980s.[11] Like the broader sample examined heretofore, this set of events exhibits significantly positive announcement returns and significantly negative long-run returns.[12] Moreover, even the subset of loans with positive estimated announcement returns shows signif-

[10]The literature already includes a variety of situations under which the market apparently underreacts to news (see Spiess and Affleck-Graves (1995), (1999) for SEOs and public debt and Bernard and Thomas (1989) for earnings announcements). However, significant return reversals have not been documented. Hertzel, Lemmon, Linck, and Rees (2002) conclude that private placements exhibit positive announcement returns followed by significantly negative long-run returns. However, the Hertzel et al. effect reflects subsample behavior rather than a true reversal. When Krishnamurthy, Spindt, Subramaniam, and Woidtke (2005) bisect private placements into separate groups, they find that the subsample of private placements with positive announcement returns does not exhibit negative long-run returns.

[11]Since LPC does not provide announcement dates, we cannot compute announcement returns for that part of the bank loan sample. This is the sample of loans evaluated in BFG (1995).

[12]Results are not tabled, but are available from the authors.

icantly negative mean three-year returns (−24%) with 99% confidence.[13] We conclude that loan announcements are misinterpreted by the market, both in the magnitude of their effect on firm value and in their direction. In other words, bank loans do not appear to be nearly so special as previously thought.

V. Borrower Earnings Announcement Transparency

Given the poor long-run performance following loans announcements and the apparent reversal of positive announcement effects, it seems that more research is needed to ascertain the source of bank loan specialness. We take an initial step in this direction, by examining an oft-cited justification for the positive announcement reaction: banks help solve asymmetric information problems for borrowers. Following Dierkens (1991) and Krishnaswami and Subramaniam (1999), we measure information asymmetry as the standard deviation of a time series of abnormal returns to quarterly earnings announcements. If banks mitigate asymmetric information problems, we expect that the loan-related monitoring should lead to less volatile earnings announcement abnormal returns.[14]

We estimate abnormal earnings announcement returns using a standard market model methodology. Denoting the Compustat earnings date as $t = 0$, we estimate a market model for each firm's stock over the window $(-200, -51)$, and then examine abnormal returns in the window $(-1, +1)$. For each firm, we compute the standard deviation of abnormal returns to i) the four quarterly earnings announcements preceding the loan, ii) the four quarterly earnings announcements following the loan, and iii) the 12 announcements following the loan. In addition, we compute the same measures for the set of size and book-to-market equity-matched peer firms. The comparisons of pre- and post-loan standard deviations are based on cross-sectional means of the standard deviations.

Table 5 presents our results. They indicate that borrowers' share prices become more volatile around post-loan earnings announcements, not less volatile. The borrowing firm's stock return volatility rises significantly (p-value = 0.01) between the four quarterly loan announcements preceding the loan and the four announcements following it. The event firms also exhibit a greater standard deviation than their peers before and after the loan, and this difference does not change following the loan event. Overall, the decline in earnings announcement transparency suggests that banks do not add value via this oft-discussed mechanism.

A confounding effect on these volatility results may be that borrowing firms increase their leverage relative to their peers. Interestingly, average leverage rises for both borrowing and peer firms in the year of the loan, but the borrowers' leverage increases more. The resulting mechanical increase in the borrowers' relative equity volatility could therefore obscure a true improvement in borrower transparency. We therefore estimate asset volatility by de-leveraging stock return volatility. Consistent with the conclusion that bank loans do not mitigate information asymmetries, we find that the borrowers' mean and median asset volatility

[13] Alternatively, the sample with long-run negative returns exhibits significantly positive announcement returns.

[14] If their newly announced loan replaces a prior loan, there may be no reduction in opacity, but there should likewise be no increase.

TABLE 5

Earnings Announcement Transparency

Mean standard deviation of abnormal returns is the average across individual firms of the time-series standard deviation of abnormal returns over the indicated window. Abnormal returns to quarterly earnings announcements are estimated over the three-day window $(-1, +1)$. We use the standard market model to establish expected returns (and thus abnormal returns) over the window $(-1, +1)$ where 0 is the COMPUSTAT earnings date. The estimation period for the market model is $(-200, -51)$. Abnormal returns are observed returns minus expected returns. Quarter -4 is the fourth prior earnings announcement relative to bank loan date. Quarter $+1$ is the first earnings event after bank loan. Significance levels based on cross-sectional t-statistics.

	Mean Standard Deviation of Abnormal Returns %		
Quarters	Loan Sample	Peer Firms	Difference
$(-4, -1)$	6.08	5.59	0.50***
$(+1, +4)$	6.56	6.02	0.54***
Difference	−0.48***	−0.43***	
$(+1, +12)$	7.53	6.82	0.71***

***indicates significance at the 1% level.

rises, and this increase is statistically significant at the 5% level. The peer firms' median asset volatility also rises, but the increase is not statistically different from the increase for borrowing firms. Therefore, on both a raw and peer-adjusted basis, loans do not appear to reduce asymmetric information problems.

VI. Long-Run Operating Performance, Loan Terms, and Borrower Characteristics

Loughran and Ritter (1997) examine long-run peer-adjusted operating performance to buttress their conclusions about negative long-run stock returns following SEOs. We adopt a similar methodology and examine the operating performance and investing activity of our borrowing firms. We examine three indicators of operating performance. The ratio of operating income before depreciation to total assets represents funds available to repay loans, while two other ratios represent returns to shareholders: net income to sales and net income to assets. To measure investment activity, we use the ratio of capital expenditures plus R&D to assets. If Compustat reports a missing value for R&D expense, we follow convention and assume the true value is zero.

A. Operating Performance

Table 6 reports the difference for each of these ratios between our event firms and their size and book-to-market matched peers for five years surrounding the loan announcements. The matching procedures are identical to those used in calculating long-term returns that are described above. As in Loughran and Ritter (1997), we report the median peer-adjusted ratios. Borrowers exhibit significantly negative peer-adjusted operating performance (operating income before depreciation to total assets) during the interval (0, 1). In other words, borrowers underperform peers on an operating basis in the year of the loan and the year following. In other years $(-1, +2$, and $+3)$, median peer-adjusted operating performance is negative but insignificant. When we measure operating performance using net income, we find more pronounced evidence of negative performance.

Peer-adjusted NI/SALES and NI/TA are negative in every year from the fiscal year preceding the loan through the third fiscal year following it. Taken together, these results suggest that the negative long-term returns are due, at least in part, to poor operating performance.

TABLE 6

Median Peer-Adjusted Measures of Operating Performance and Investing Activity

Table 6 presents medians of peer-adjusted variables (sample firm minus peer firm values). Peers are chosen on the basis of size and B/M equity. Variables are: (operating income (item 13) scaled by total assets (item 6)); (net income (172) scaled by sales (12)); (net income (172) scaled by total assets (6)); (capital expenditures (128) + R&D expense (46) all scaled by total assets (6)); and (capital expenditures (128) scaled by total assets (6)). Year −1 values are the latest fiscal year-end values prior to bank loan. Year 0 values are fiscal year-end values at the end of the bank loan year. Peer adjusted values equal the ratio for bank loan announcer minus the ratio for peer. The peer is chosen based on size and the B/M ratio. Year is relative to bank loan year. Indications of significance of medians are based on Wilcoxon signed-rank tests.

Year	OIBD/TA	NI/SALES	NI/TA	(Capex+RD)/TA
−1	−0.00463	−0.00784***	−0.01029***	−0.00560***
0	−0.00997***	−0.01057***	−0.01494***	−0.00465***
1	−0.00673***	−0.00867***	−0.01310***	−0.00685***
2	−0.00421	−0.01092***	−0.01416***	−0.00641***
3	−0.00253	−0.00848***	−0.01309***	−0.00623***

***indicates significance at the 1% level.

Titman, Wei, and Xie (2004) find a negative relationship between returns and investment and conclude overinvestment can drive poor performance. For our sample of loan firms, we see peer-adjusted investment is always negative. This suggests that overinvestment is unlikely to be driving our results.

B. Loan and Borrower Characteristics

Given both poor peer-adjusted stock and operating performance following the loan, one might hope to detect specific economic causes of the two phenomena. We therefore regressed both performance measures on loan and ex ante borrower characteristics. Our loan characteristics are relative loan size (loan amount divided by market cap), loan spread, and a dummy variable indicating whether the loan is secured. Our firm characteristics are size and equity's book-to-market ratio. Table 7 presents descriptive statistics for these variables. The mean loan size (expressed as a percent of the borrower's equity market value) is 55.7%. A smaller median loan size (26.1%) indicates significant skewness in this ratio. The average loan spread is 157 basis points over LIBOR and 39.5% of the sample loans are secured. Since loan spread information is only available for a subset of loans (N = 4,784), we also report BHARs (using all four matching criteria) for the subsample with available data. As for the full sample described in Panel A of Table 3, these BHARS are all significantly negative.[15] Both the means and medians are comparable to those presented in Table 3. This suggests that data constraints will not bias our conclusions about the potential economic underpinnings of long-run underperformance.

Table 8 presents four regression results that evaluate the impact of loan and firm characteristics on a firm's subsequent share and operating performance. In

[15]We only analyze BHARs in this section because they later permit us to examine the relationship between underperformance and individual loan and borrower characteristics in a cross-sectional framework.

TABLE 7

Univariate Statistics on Loan and Firm Characteristics

Relative loan size is the loan value divided by the market value of equity. The loan spread is the risk premium built into the loan rate measure in basis points. The sample is 4,784 loan agreements with complete information on the tabled items.

Variable	Mean	Median
Relative loan size	0.5568	0.2609
Loan spread (bps)	157.03	125
Secured	0.3951	0
Firm size (millions)	2676.7	304.3
B/M equity	0.5955	0.4743
BHAR (size and B/M equity match)	−32.35%***	−11.32%***
BHAR (size match)	−32.19%***	−8.36%***
BHAR (SIC, size match)	−31.72%***	−11.79%***
BHAR (size, run-up match)	−25.93%***	−8.36%***

***indicates significance at the 1% level.

column (1), the cross-sectional regression of BHARs on characteristics reveals that the firm's size and book-to-market do not predict long-term share returns. However, the loan terms do contain some information. Larger relative loan sizes are associated with worse ex post peer-adjusted stock returns. If a loan is secured, the shareholders' long-run return is higher ($t = 1.97$). While the coefficient on the loan's rate spread differs insignificantly from zero, the coefficient on the interaction of loan rate spread with the secured dummy variable (-0.00070) is significant at the 5% level ($t = -2.04$). This coefficient is also highly economically significant. For example, consider two otherwise identical borrowers with secured loans. If one borrower's loan rate is 200 basis points higher than the other's, its expected BHAR would be lower by 0.14 (200×0.0007), compared to the average BHAR of -0.35.

We can use these results to make some important inferences about the extent to which lending banks anticipate borrowers' poor equity performances. Confronted with a riskier looking borrower, the bank can demand collateral, charge a higher rate, or both. In addition, bank loans have priority over equity so a loan need not exhibit poor performance simply because the equity does. The significant coefficient on (secured*spread) is consistent with the notion that banks may protect themselves from the worst ex post performances: for the borrowers whose stock returns fall the most, the banks tend to have secured, high rate loans.

The last three columns in Table 8 assess the impact of borrower and loan characteristics on the firm's subsequent operating performance. Column (2) indicates how these characteristics relate to changes in peer-adjusted[16] operating performance measured as the borrower's average peer-adjusted operating performance over the three years following the loan minus the same over the year before the loan. As in the first column, observable firm characteristics cannot predict the change in its operating performance, but some of the loan terms can. For example, larger loans are associated with significantly larger improvements in operating performance. Since operating income is presumably a major source of loan payments, then banks making larger loans may not suffer even though these loans are associated with worse equity performance. The coefficient on the secured loan indicator indicates that when the bank secures its position subsequent

[16]Again, peers are matched on size and book-to-market equity.

TABLE 8

Regressions of BHARs and Operating Performance on Loan and Firm Characteristics

BHAR is measured using and size and B/M matched peer firms. Δ(OIBD/TA) is the three-year average post-loan OIBD/TA ($t + 1, t + 3$) minus pre-loan OIBD/TA for year $t - 1$. Variables with the subscript Pre describe the fiscal year that ends prior to the loan event. Variables with the subscript Post measure the average over the 3 fiscal years following the loan's fiscal year. $\text{OIBD/TA}_{\text{pre}}$ is peer-adjusted operating performance where peers are chosen on the basis of size and B/M. The sample is 4,784 loan agreements with complete information for each regression. White (1980) corrected t-statistics are reported in parentheses.

	(1) BHAR	(2) Δ(OIBD/TA)	(3) $(\text{OIBD/TA})_{\text{pre}}$	(4) $(\text{OIBD/TA})_{\text{post}}$
ln(mveq)	0.003	−0.0009	−0.016***	−0.017***
	(0.19)	(−0.39)	(−6.66)	(−6.98)
B/M equity	0.014	−0.003	−0.029***	−0.033***
	(0.29)	(−0.51)	(−4.11)	(−4.60)
ln(relative loan size)	−0.506**	0.012***	−0.007***	0.006
	(−2.09)	(3.56)	(−2.58)	(1.43)
Secured loan indicator	0.196**	−0.026*	0.038***	0.012
	(1.97)	(−1.68)	(3.16)	(0.77)
Loan spread (bps)	0.00040	0.00001	−0.00013***	−0.00012***
	(1.14)	(0.30)	(−2.69)	(−2.68)
Secured*spread	−0.00070**	0.00013*	−0.00017***	−0.00004
	(−2.04)	(1.69)	(−2.86)	(−0.49)
Intercept	−0.515	0.034	0.358***	0.392***
	(−1.44)	(0.69)	(6.83)	(7.59)
Adj. R^2	0.0011	0.0085	0.0259	0.0146
F-statistic	1.86*	7.85***	22.19***	12.85***

*,**,***indicate significance levels at the 10%, 5%, and 1% levels, respectively.

changes in operating performance are marginally weaker. This suggests that the bank is protected from poor performance by collateralizing the loan. However, for the arguably riskiest loans—those where the bank secures its claim and charges a higher spread—operating performance improves significantly, again with 90% confidence. While borrowers receiving secured/high rate loans exhibit the worst long-run equity returns, the bank appears to be insulated by improved operating performance and the loan contract terms.

Column (3) of Table 8 reports results based on peer-adjusted ex ante operating performance. Now we find that the firm's size and book-to-market are correlated with poor performance. Poor ex ante performers also tend to take relatively larger loans on which the lender charges a higher rate spread. Especially poor ex ante performance is correlated with a secured loan that also carries a relatively high rate spread.

Finally, we examine the post-loan peer-adjusted operating performance in column (4) of Table 8. Small, value firms tend to do poorly in terms of operating performance following a loan. The effect of relative loan size is not statistically significant. Therefore, we conclude that the positive relation between loan size and changes in operating performance is driven by the relation to ex ante operating performance and the subsequent improvement in performance. This is consistent with banks lending more heavily in situations they expect to turn around from an operating standpoint (even though it may not serve shareholders well). Furthermore, the coefficient on (secured*spread) is insignificant, suggesting that the relation between this and changes in operating performance is driven by the link to ex ante operating performance.

VII. Summary and Conclusions

Like other securities issuances, private loans appear to be associated with negative subsequent performance. For example, the mean buy-and-hold-abnormal-return (BHAR) over three years following a loan announcement is −32.7%, comparable to the mean three-year BHAR of −23% reported for SEOs by Spiess and Affleck-Graves (1995) and comparable to the −14% mean *five*-year underperformance following straight debt issuance (Spiess and Affleck-Graves (1999)). Although the best technique for measuring long-run stock returns remains controversial, our results are robust to alternate methodological approaches.

These results challenge the view that private lending agreements provide unique benefits for the borrowing corporations. We specifically evaluate whether banks reduce information asymmetries by examining the transparency of borrowers' earnings. We compare the standard deviation of abnormal returns to borrower earnings announcements both pre- and post-loan, and to peer firms' earnings announcement return volatilities. We find no evidence that earnings transparency increases following the loan. In fact, it decreases, suggesting that reductions in information asymmetry are unlikely to explain the positive short-run returns associated with loan announcements.

We examine the operating performance of borrowing firms around their loan announcements. Borrowers have lower operating income and capital expenditures than their peers in the year of and following the event, and this continues for two or three years after the loan has been put into place. The negative operating performance is more pronounced when measured using net income figures. Taken together, these results are consistent with the poor stock returns.

Despite the borrowers' poor operating performance and equity returns, the loan terms suggest that lenders protect themselves from default losses. Relatively larger loans are associated with worse equity returns, but larger loans are also associated with bigger improvements in operating performance. This suggests that while equity holders earn poor returns, the bank loan is unlikely to share in the poor performance. We also find that poor performance is concentrated when the bank is well protected by the terms of the loan. Thus, it does not appear that the bank is surprised by the poor performance.

Our results reinforce earlier studies' implications that announcement returns can be misleading about the extent of financing effects on firm value. In fact, this is the first study to robustly document that the market is systematically wrong about the perceived direction of the event's effect on firm value going forward. It seems that completely investigating the wealth effects of firm-specific corporate events requires attention to long-run wealth effects as well as to announcement effects. Our results suggest that, from a long-run perspective, bank loans are not special.

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