Do Information Rents in Loan Spreads Persist over the Business Cycles?[1]

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Abstract

In this paper, we seek empirical evidence for information rents in loan spreads by analyzing a sample of UK syndicated loan contracts for the period from 1996 to 2005. We use various measures for borrower opaqueness and control for bank, borrower and loan characteristics and we find that undercapitalized banks charge approximately 34 bps higher loan spreads for loans to opaque borrowers. We further analyze whether this effect persists throughout the business cycle and find that this effect prevails only during recessions. However, we do not find evidence that banks exploit their information monopolies during expansion phases.

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1 Introduction

The costs of bank-borrower relationships have received scarce research attention.[3] This paper contributes to the strand of research that argues that the costs that are associated with lending relationships are economically significant. We show that capital-constrained banks exploit their information monopolies over borrowers that have high costs for switching lenders by charging higher loan spreads than their well-capitalized peers (the "weak bank effect"). This effect prevails only in recessions. However, we find evidence of the commitment of lenders to their borrowers during expansion phases.

In our empirical analysis, we employ a data set of UK syndicated loan agreements for the time period from 1996 through 2005. As the UK is a highly developed economy with a market-based system, its economy is comparable to that of the US. Because private companies in the UK are legally required to disclose their financial statements to the UK Companies House, this data set confers upon this study a notable advantage over prior research in this area. Information problems are typically greater for private firms, which constitute the majority of firms in our data sample. The theoretical models that provide the foundation for this study rely on the existence of private information that is not observable by outsiders; this assumption is particularly relevant for our sample. As a consequence, we are able to provide greater insight into the size of the informational rents that banks can earn in the syndicated loan market.

We seek empirical evidence for information monopolies building on the theoretical models of Greenbaum et al. (1989), Sharpe (1990) and Rajan (1992). These authors show that relationship lenders have an information monopoly over outside investors and that these monopolies effectively lock in borrowers and enable banks to extract monopoly rents. This information disparity stems from the uncertainty of outside investors in evaluating the quality of borrowers. We recognize two dimensions of uncertainty: first, there is an adverse selection (winner's curse) problem. Second, there are external events that amplify the adverse selection component. We find that increased uncertainty through macroeconomic fluctuations is important to understand bank behavior with respect to loan pricing when information problems are elevated.

[3] The works of Berger and Udell (1995), Petersen and Rajan (1994, 1995), Schenone (2010), Santos and Winton (2008), and Saunders and Steffen (2011) are notable exceptions.

Bank credit policies fluctuate during the business cycle, and they vary countercyclically. Evidently, there is some variation in the credit policies of banks, and a sharp tightening of credit standards in the early 1990s and 2000 overlaps with periods of economic contraction (both in Europe and in the US). Lending standards appear to vary for both small and large borrowers in a similar manner. Ruckes (2004) explains this phenomenon with respect to the profit-maximizing behavior of banks rather than the carelessness of bankers. During recessions, the average quality of borrowers in the pool of credit applicants is low. Therefore, the costly screening process serves to identify high-quality borrowers from this pool. As there is a high probability that credit assessments turn out to be negative, the marginal benefit from screening is low and so is the intensity of screening as well as lending volume during these periods. If the economy improves, the average quality of borrowers improves as well, which increases the probability that credit assessments are positive. This, in turn, increases the marginal benefit of screening by increasing the intensity of screening by banks. However, beyond some point, the average quality becomes excessively high, the marginal benefits from screening decrease and, the screening intensity is again reduced. Credit standards are lax in good times; therefore, the default risk of the portfolios of banks increases. This concern is particularly relevant for poorly capitalized banks. If the bad loans that are extended in good times default during recessions, then these banks might suffer severely in terms of their capital, and this effect would compromise their financial stability. It is thus a natural question whether these banks price their loans differently compared with well-capitalized.

Comparing borrowers with high and low switching costs, we find that undercapitalized banks charge higher loan spreads in loans to firms, who thus encounter high switching costs. This effect is shown to be statistically and economically significant. We find that information monopolies exist in periods of economic contraction: only weak banks raise their spreads above the level that is justified by the credit risk for borrowers with a high cost of switching lenders. This finding is consistent with reputation considerations and discretion in bank loan commitments. Ambiguity regarding borrower financial health, which is the initial inducement of information monopolies, also causes banks to renege in adverse situations (Boot et al. (1993)). Banks place their reputations at risk by offering these loan commitments. Well-capitalized banks honor their commitments by choosing not to exploit their information monopolies and thus enhancing their reputation (and potentially increasing their future fee income). In contrast, preserving the financial health of weak banks outweighs the benefits of

preserving their future reputations, and they charge their borrowers for higher spreads. These results are robust to alternative measures of bank and macroeconomic risk proxies.

The closest research to this study is the paper by Hubbard et al. (2002), who study the effects of bank capital on the interest rates of loans. These authors argue that the existence of switching costs drives the negative relationship between bank capital and loan spreads. However, this effect should not appear in the absence of switching costs. Coleman et al. (2006) employ a novel, ex-ante proxy for monitoring and find that monitoring is a significant determinant of both loan maturity and loan pricing. Santos and Winton (2008) find that borrowers pay higher rates for syndicated loans when they do not have access to the public debt market. During recessions, this effect is even stronger, and the information monopolies of banks are even greater. In addition, Schenone (2010) argues that borrowers pay higher rates for syndicated loans before their IPO. To the best of our knowledge, no study has explored informational rents and the behavior of loan spreads over business cycles in the European loan market.

However, we wish to address two caveats. First, because our research is based on the highly competitive syndicated lending market, there should theoretically be no informational rent. Nonetheless, we find evidence for informational rents based on the monitoring role of the lead arranger (compare with the works of Sufi (2007) and Bosch and Steffen (2011)). Second, there could be a sample selection bias in unobserved borrower heterogeneity that might bias our results: opaque borrowers might choose weak lenders because these lenders are denied credit from strong banks. To control for this concern, we exploit the panel data nature of our sample to determine whether a change in bank capital affects syndicated loan spreads for a given firm-bank match. The results provide supporting evidence for our theoretical framework.

This paper proceeds as follows. In section 2, we introduce the theoretical framework and explain how we implement this framework empirically. In section 3, we describe the data and variables that are used in this study. All of our multivariate analysis are provided in section 4 and robustness tests and our discussion follow in section 5. The final section concludes the paper.

2 The costs of banking relationships: Theoretical framework and empirical implementation

This paper draws from theoretical models to demonstrate the conditions under which interest rates increase over the course of bank-borrower relationships. Greenbaum et al. (1989), Sharpe (1990) and Rajan (1992) offer important contributions that build the microeconomic foundation of this study.

A common threat to all models is when a bank acquires proprietary information (which is unavailable to outside lenders and effectively locks in a borrower) in the process of lending to a firm. An incumbent (relationship) bank has an informational advantage over the competitor banks, and this advantage allows the incumbent bank to extract rent. A crucial determinant of this monopoly power is the uncertainty of competitor banks regarding the quality of borrowers. One dimension of this uncertainty component is the adverse selection problem that is modeled, for example, by Greenbaum et al. (1989) and Rajan (1992). Under the assumption that a relationship bank is certain that a borrower will fail or succeed, this bank will bids for the loan only if the borrower succeeds. If the borrower accepts the offer of the competitor bank and the loan is priced according to its marginal funding costs, then the competitor bank earns a negative expected profit. Therefore, the incumbent bank will adjust the offer according to its belief regarding the quality of the borrower. Borrowers with higher perceived quality will receive lower lending rates because the competitor bank bids more aggressively. Borrowers with lower perceived quality are likely to receive higher lending rates. A second dimension of uncertainty is the macroeconomic environment. One body of literature (compare with the works of Brinkmann and Horvitz (1995) and Bernanke and Gertler (1995), who survey some of the literature) argues that the capital concerns and liquidity of banks result in a credit crunch by reducing the supply of loans. Opposing this argument, we follow Rajan (1992), Santos and Winton (2008), and Santos (2011). Santos and Winton (2008) argue that the decrease of supply may be opportunistic, as banks exploit higher rates due to lower competition. Competition decreases during recessions as the uncertainty regarding the quality of borrowers increases and competitor banks price their loans less aggressively. If uncertainty regarding borrower quality is high, then firms encounter higher switching costs, which increase the monopoly power of relationship banks. Santos (2011) shows that syndicated loan prices increased significantly during the 2008 recession. This observation is consistent with the argument of Rajan (1992), who claims that borrowers with a higher probability of default

are more likely to suffer from informational hold-up problems. During recessions, the probability of default is even higher for all borrowers, and this higher probability amplifies the hold-up effect. Thus, lenders are able to increase their rates above the default risk premium.

However, having monopoly power over borrowers does not necessarily imply that such banks exploit this power by charging higher spreads. Boot et al. (1993) show that ambiguity regarding borrower financial health, which is the original inducement of the informational advantage of relationship lenders, also triggers bank discretion. Reputation considerations of the relationship bank constitute a commitment device: the expectation of banks to enhance their reputations and earn higher income in the future commits them to not exploiting their monopoly power. Nonetheless, relationship banks might not commit to the promise to not exploit a borrower if the reputation of such banks is less important than their current financial stability. Such banks may choose to extract rent from their borrowers to preserve their own financial health.[4] Therefore, the answer to the question of whether banks exploit their information-captured borrowers is ultimately an empirical answer.

To implement this framework, we must accomplish two steps. First, we must classify borrowers according to their switching costs. Second, we must account for the financial health of banks. We begin with the classification of borrowers.

In our empirical strategy, we adopt a notion that differs from the views of Petersen and Rajan (1994), Petersen and Rajan (1995) and Berger and Udell (1995). Following Schenone (2010), Bharath (2008), and Saunders and Steffen (2011), we accentuate the existence of switching costs as the condition for banks to exploit their information monopoly. Our approach differs significantly from the methodology that is utilized in these studies, as we perform a cross-sectional analysis to analyze whether capital-constrained banks charge higher spreads to information-opaque borrowers by using a variety of switching-cost proxies.[5]

We construct four measures for switching costs based on prior research in the relationship lending and syndicated loan literature. In our empirical analysis, we perform the analyses separately for these proxies. The proxies are constructed to capture the uncertainty of (non-relationship) outside investors. When these investors are better informed, their beliefs are more precise, and their bids are more aggressive. This information increases the probability that a borrower switches to other lenders and increases competition for the borrower, which in

[4] There is some evidence for this effect in the work of Hubbard et al. (2002). Due to the time series limitation of their data, these authors were unable to explore this idea further.

[5] Similarly, Santos and Winton (2008) use public debt market access as a proxy for high and low switching costs.

turn, reduces the information monopoly of the incumbent bank. Faulkender and Petersen (2006) present a similar result with an application to the public bond market: "We were told that the less banks had to introduce and explain a new issuer to the market, the more likely a public bond issue […] would be."

The first proxy is ***Private vs. Public***. Private firms are unlikely to be monitored by rating agencies or covered by bank analysts; hence, information asymmetries are expected to be particularly large between these firms and (non-relationship) investors (compare with the works of Bosch and Steffen (2011) and Saunders and Steffen (2011)). The second proxy is ***Small vs. Large***. Following Gertler and Gilchrist (1994), we choose the 30 percent quantile of sales as the cut-off point for small firms. These authors found that firms within this size category rely more on information-intensive financing. The third proxy is ***Young vs. Old***. Young firms lack a record of successful completed projects, and outside investors are uncertain regarding the management and potential growth options of such firms. We follow Santos and Winton (2008), who also argue that young firms are riskier. The fourth proxy is ***First-Time Loan vs. Prior Lending Relationship***. This proxy is constructed based on earlier results in the syndicated loan literature. As indicated by authors such as Ivashina (2009), previous relationships reveal the reputation of a borrower in the market and are associated with lower spreads. In other words, previous relationships reduce the informational advantage of a relationship bank.

We further account for bank financial health using a ***Weak Bank*** specification that is similar to the specification used by Hubbard et al. (2002). We elaborate on this specification in section 3.2.

3 Data and methodology

Data

The data for this study are obtained from five different sources: the Dealscan database from the Loan Pricing Corporation (LPC), the UK Companies House, van DIJK's Bankscope database, Datastream, and the Centre for Economic Policy Research (CEPR).

We examine all of the UK syndicated loans over the period from 1996 through 2005. All loan characteristics (i.e., loan amount, spread (in addition to fees), deal active date, time to maturity, loan purpose and loan type) are extracted from this database on the facility level.

We further need borrower and lender identifiers to match the loan data to the other databases. Lenders are identified using their names, parent names and countries; the variables of name, region/country and SIC classification were used to identify borrowers. Because Dealscan lacks all of the relevant borrower information, we consult actual company reports that are obtained from UK Companies House[6] to obtain the missing information. Furthermore, we use Dun & Bradstreet's Hoovers database to obtain information regarding whether a public firm is stock exchange-listed and on which stock exchange(s) a firm is listed.

We supplemented the information for the lead lender with data from Van DIJK's Bankscope database. We carefully account for loans that are issued by different subsidiaries of the same lender parent by attributing each loan to the lender parent. Therefore, all of the bank financial variables are extracted on the lender parent level.[7] Both the borrower and lender financial data are obtained from the year prior to the loan transactions.

Our raw sample contained information regarding 5,063 syndicated loans that were issued to UK borrowers. Accounting for loans that are not fully confirmed, loans that show structural inconsistencies, and loans to borrowers from regulated and financial industries, we deleted 739 loans from the sample. Usable information regarding loan prices was available only for 3,146 of the remaining loans. We further required the joint availability of the borrower and lead bank data and censored observations of the tier 1 capital ratio at the 99 percent level. Our final sample consists of 988 loan transactions and represents 305 different UK-based firms and 99 different lead banks.

We identify recessions using the EuroCOIN Index that is provided by the Centre of Economic Policy Research (CEPR) as an indicator for economic activity. EuroCOIN is the leading coincident indicator of the Euro-area business cycle available in real time. The indicator provides an estimate of the monthly growth of the Euro-area GDP after the removal of measurement errors as well as seasonal and other short-term fluctuations. In other words, the index represents only the cyclical component of GDP growth.[8] The index began in January 1988. Over the lifetime of the index, the average quarterly growth rate was 0.59.

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[6] Companies House is the national institution that is responsible for storing all company information that is provided under the UK's Companies Act 1985. The information that is provided includes the filings, industry affiliations, legal forms and dates of incorporation for all companies.

[7] We use financial statement data for all borrowers and lenders from the year prior to the transactions.

[8] EuroCOIN is constructed using a data set that covers approximately 1000 monthly variables from the six largest economies of the Euro area. The variables included are industrial production, consumer and producer prices, trade variables, money, stock prices and exchange rates, interest rates, labor market-related variables and surveys, among others.

Based on definitions in earlier research, we define that an economy is in a recession when the EuroCOIN Index is below its long-term average for at least four consecutive quarters. The EuroCOIN Index is based on an extension of the Stock-Watson XCI methodology, which was one of the leading coincident indicators for the US market until 2003. Its direct successor for the US economy is the Chicago Fed National Activity Index (CFNAI), which is also an extension of the Stock-Watson XCI methodology. Other researchers who use the Stock-Watson index to measure economic activity and rely on our definition of recession include Santos and Winton (2008). Based on this definition, we identify the following periods of recession: 1995:03 through 1996:08 (our sample period begins in 1996:01), 2000:12 through 2002:02, 2002:06 through 2003:06 and 2004:07 through 2005:08.[9]

Methodology

In the empirical analysis, we estimate a cross-sectional model of a sample of n loans (i=1,…n). The basic regression model is specified as follows:

$$Spread_i = c + \delta \text{Weak Bank}_i + \beta X_i + \gamma Y_i + \lambda Z_i + u_i \,.$$

The dependent variable is the All-In-Drawn Spread (AIDS) reported by Dealscan. AIDS is the spread above the LIBOR, including the annualized fees that are shared with the participants. However, arranger fees that are typically paid upfront to the arranger of a syndicate are not included. X_i, Y_i and Z_i are the vectors of bank, borrower and loan characteristics. The variables are discussed below.

Our key explanatory variable for bank characteristics in the empirical model is ***Weak Bank***, which is reminiscent of the variable used by Hubbard et al. (2002) and defines undercapitalized banks. Although Hubbard et al. (2002) use the capital-asset ratio to identify weak banks, we use the tier 1 ratio for two reasons. First, our sample period covers a period in which banks are already adapting to Basel II regulatory requirements. The Basel Accord establishes as ratios two aggregates of accounting capital to risk-weighted assets. The primary or tier 1 capital is required to exceed 4 percent of the risk-weighted assets, whereas the total

[9] Four consecutive quarters of below-average growth in GDP indicates long-term economic weakness; this method is consistent with the methods that are used for US Stock-Watson indices in earlier literature.

capital (tier 1 plus tier 2) must exceed 8 percent of the risk-weighted assets. Second, our data set comprises banks from different countries with different accounting standards. To minimize biases due to different accounting regimes, we use these standardized regulatory measures. Our principal threshold is a primary capital ratio of 6.3 percent, which corresponds to the 25 percent quantile. We further analyze the effect of undercapitalization using this threshold over each individual year. Alternative thresholds that are used in this study are (a) a primary capital ratio of 6.8 percent (median) and (b) whether the primary capital ratio is in the range of 4.8 to 6.3 percent (1 percent to 25 percent quantile).

We also add several control variables for bank characteristics. We control for the monitoring quality of the banks using ***Loan Loss Provisions***. Furthermore, we proxy for the quality of loan portfolios using ***Non-Performing Loans***. We expect to find a positive relationship between non-performing loans and loan spreads because an increase in this ratio reflects ex-post poor lending decisions that increase the risk of a bank portfolio. To account for liquidity risk, we further include ***Net Loans*** and ***Liquid*** in some specifications of the model. We also include ***Total Assets***. The level of the bank asset size can capture a variety of influences. As argued by Boot and Thakor (2000), relationship lending might be associated with high fixed costs and economies of scale. Furthermore, large banks are more established in the market, have a larger network and are thus able to syndicate larger portions of a loan more easily. Large banks may also be able to sell multiple products to a borrower more easily and thus have an advantage in building information monopolies. We further account for lender country fixed effects.

To address other possible explanations for our results, such as differences in credit risk and loan characteristics between bank-dependent and non-bank-dependent borrowers, we include several control variables. Some of these important variables are discussed below.

We include several borrower control variables for both public and private companies, which provide us with a considerable advantage over prior studies. Following earlier studies (e.g., Bharath, Sunder and Sunder (2008) and Harjoto, Mullineaux and Yi (2005)), we use ***Firm Size*** to control for the credit risk of a borrower. These studies have shown that, ceteris paribus, loans to large borrowers carry lower spreads. Lower spreads for these borrowers can be attributed to factors that include economies of scale in loan origination and monitoring (Booth (1992)). Banks may give larger loans to borrowers only if they are certain that these

borrowers are less risky. Therefore, firm size and spread should be negatively related.[10] ***Leverage*** proxies for the risk of a firm's debt and should be positively related to loan spreads. We further include ***Age (since incorporation)***. Because older firms are expected to be more established and lenders should possess information regarding the quality of the management of such firms, we expect to find a negative sign between firm age and loan spread. The ***Interest Coverage Ratio*** proxies for the ability of a borrower to fulfill its interest repayment. Interest coverage is expected to be negatively related to loan spread.

We also extensively control for the characteristics of the loan contracts that prior literature has shown to be significantly related to loan spreads. We include ***Maturity***, which proxies for any possible effect of maturity on spread. To control for the size of a loan, we include ***Loan Size***. We further control for two specific types of loans in the sample that are discussed in the literature in detail: ***Revolver*** and ***Term Loans***. Following Gottesman (2004), we create three indicator variables to incorporate collateralization: ***Secured*** indicates that a loan was secured, and ***Unsecured*** indicates that a loan was unsecured. ***Secured (Missing)*** is a dummy variable that is equal to one if collateralization information is missing. Loans for which banks do not require collateral are expected to be less risky than collateralized loans. We also include proxies for the quantity of loans that are issued in the same month in which a loan was issued. We include ***Revolver Volume*** and ***Term Loan Volume*** as quantity measures for all term loans that are issued in the same month in which a specific loan was issued. The flexibility of pricing syndicated loans has increased by incorporating ***Performance Pricing*** features into debt contracts. As noted by Ball, Bushman and Vasvari (2008), performance pricing represents a shift from the use of less flexible covenants. The lenders are protected against an unexpected deterioration of firm performance. Hence, we expect a negative relationship between performance pricing and spread. Other loan controls include the ***Number of Facilities*** and ***Loan Purpose***[11] dummies. Finally, we also added the market controls of ***LIBOR*** and ***Term Structure***.

Sample characterization

[10] Firm size is the natural logarithm of a firm's total assets. In unreported tests, we also used operating revenues as a proxy for firm risk. Substituting variables for one another does not affect the results.

[11] We explicitly control for general corporate purposes, corporate control, capital structure and project finance-related purposes.

The final sample consists of 988 loans that are associated with 305 borrowers and 99 lead banks. Table I shows the descriptive statistics for the variables that are used in our analysis for the full and matched samples. The matched sample requires the joint availability of bank, borrower and loan characteristics. The average facility size is USD 463 million with a maturity of 66 months. Borrowers pay an average of 166bps over the LIBOR.

[Table I]

We further provide descriptive statistics in three different ways: (1) We group essential loan, borrower and bank characteristics according to borrower asset size. (2) We also show the percentage of loans that are issued and the average facility size grouped by the number of lead banks present in a syndicate. (3) Finally, we show the correlations among switching cost proxies in the style of Hubbard et al. (2002).

[Table II]

Table II characterizes the loan, bank and borrower characteristics that are grouped by borrower asset size. Interestingly, 23 percent of all loans in the sample are associated with firms with asset sizes of less than USD 200 million. Only 10 percent of all loans are provided to firms with a book value of assets that is more than USD 10 billion. The results for spread and loan maturity reveal a consistent pattern with respect to the size categories: the smallest borrowers pay the largest spreads with an average AIDS of 207 bps. Furthermore, these firms borrow with the longest maturities (an average of 107 months). However, the largest borrowers pay the lowest spreads (an average of 60 bps) and borrow with the shortest maturities. The results for the leverage ratios and interest coverage ratios do not show fully consistent patterns but imply that small firms are more highly leveraged than large firms. The interest coverage ratios are significantly higher for firms with asset sizes of less than USD 1 billion. We also provide the characteristics of the tier 1 ratio and equity-capital ratio, which already lend some support to our argument. Both the tier 1 ratio and the equity-capital ratio are smallest for the banks that lend to the smallest borrowers and significantly larger for the banks that lend to larger borrowers.

[Table III]

Table III shows the correlations among the switching cost proxies. Private borrowers are more likely to be small, young and first-time borrowers in the syndicated loan market. Small companies are more likely to be private, young, and first-time borrowers. First-time borrowers are more likely to be private, small and young.

4 Multivariate analysis

Loan spreads for bank-dependent and non-bank-dependent borrowers

This section discusses the multivariate analysis of the effect of the capital constraints of banks (weak bank effect) on the spread in syndicated loan contracts while controlling for loan, bank and borrower characteristics.

[Table IV]

Table IV shows the full sample regression results. With the sample drawn from the syndicated loan market in which there is some extent of concentration among lead banks, there is a clustering of observations by the lead bank. As loans with the same lead bank are unlikely to satisfy the OLS assumption that loans are independent, we use OLS with cluster-corrected standard errors to account for clustering by the lead bank. In all of the models that are shown in Table IV, the dependent variable is the AIDS variable. Loans for which the secured status is missing are omitted. All of the regressions control for year, industry and lender country effects. Furthermore, as described previously, borrower and loan variables are included in all of the regressions. However, no variables carried a coefficient with unexpected signs, and the coefficients do not substantially change between the regression models. The borrowe and loan variables remain unreported for the sake of brevity.

The weak bank effect varies between 33 bps and 40 bps depending on the bank control variables that are used in the regressions. In models 1 through 4, we include various control variables for bank portfolio and liquidity risk, as discussed previously. For multicollinearity reasons, we introduce the variables in a step-by-step manner. The coefficient of the weak bank variable remains positive and highly significant in models 1 and 2. However, when only liquidity risk is controlled, the coefficient is at best weakly significant. Furthermore, the coefficients for the liquidity proxies contrast with the proxies for portfolio risk: when a bank's liquidity risk is higher, ceteris paribus, lower spreads are charged to borrowers. When both

the portfolio and liquidity risk proxies are included in the regression, the liquidity effect diminishes. The coefficient for loan loss provisions is highly significant and negative in models 1 and 2. This result is consistent with the notion that good monitors (which need not provide for loan losses ex-post) are able to charge higher spreads. The weak bank coefficient is positively significant at the 1 percent level and comparable in magnitude to models 1 and 2. The full sample analysis reveals that weak banks charge higher loan spreads than their well-capitalized peers. This effect is larger than that which was found by Hubbard et al. (2002); this difference emerged because a large portion of the borrowers in our sample are small and private firms. In their study, Hubbard et al. (2002) found weak bank effects that ranged from 19 bps to 22 bps. The effect that we find is also economically significant. The distribution of loan spreads in our sample shows that price buckets frequently differ by 25 bps. Hence, the weak bank effect that is charged to borrowers increases spreads by one price bucket.

Consistent with prior studies, institutional term loans carry higher loan spreads and reflect longer maturities and greater risks due to back-loaded repayments. Collateralized loans have 54 bps to 63 bps higher loan spreads, ceteris paribus. This result supports the previous empirical findings that loans to riskier borrowers are generally collateralized. As we expected, performance pricing features reduce the spreads that are required by lenders. The ability to increase loan spreads after a borrower's financial situation deteriorates also increases loan safety. The inclusion of covenants in loan contracts, ceteris paribus, increases loan spreads; this result is consistent with the notion that covenants are necessary for borrowers that require more intensive monitoring.

[Table V]

Table V reports only the coefficients of the bank variables for the sake of brevity. However, the control variables are identical to those that are used the models discussed above. The first column in panel B repeats the first model for comparison reasons. In models 6 and 7, we use different thresholds to show that our results are robust to different threshold specifications. In model 6, we define a bank as capital constrained if its tier 1 ratio is less than 6.8 percent (the median value). The results show that the weak bank effect is (almost) identical to that of model 1.[12] If we use the difference between the first and 50th percent quantile as the threshold, then the weak bank effect still remains significant; however, the magnitude changes to 20 bps.

[12] The results change after the fourth decimal point.

Model 8 introduces year effects and analyzes whether weak bank effects are associated with particular years. We find an interesting result: at the beginning of our sample period, the weak bank coefficient is negative and (weakly) significant. A positive and significant effect can be observed only for 2003 and beyond.

Accounting for the business cycle

This section analyzes loan spreads for bank-dependent and non-bank-dependent borrowers throughout the business cycle. As described above, we define an economy that is in recession when the EuroCOIN Index is below its long-term average for at least four consecutive quarters. Based on this definition, we identify the following periods of recession: 1995:03 through 1996:08 (our sample period begins in 1996:01), 2000:12 through 2002:02, 2002:06 through 2003:06 and 2004:07 through 2005:08. Prior to 2001 (for our sample period), the economy was primarily in an expansive phase. If the state of the economy explains our earlier results, then we expect to find significant coefficients for the weak bank variable by analyzing subsamples for loans that were issued in recessions and expansions.

We must also find convincing evidence that a weak bank effect can be traced to firms with high switching costs because such evidence would be consistent with our theoretical framework. Therefore, in panel A of Table VI, we re-run our regressions in the subsamples that are divided according to our switching cost proxies: (1) private vs. public, (2) small vs. large, (3) young vs. old and (4) first-time borrowers vs. those with prior relationships. [13]

[Table VI]

To show the weak bank effect in the most pronounced manner, we report only the coefficient of the weak bank proxy in this table. The borrower and loan controls are identical to those in model 1. Model 1 is used as a benchmark model throughout our empirical analysis.
The results in panel A provide clear evidence that weak banks charge significantly higher spreads to firms with high switching costs. Depending on the proxies for the switching costs that are employed, this effect varies between 49 bps and 79 bps. For firms facing low

[13] We further use rated vs. unrated as an additional proxy to test for switching costs (compare to the works of Hubbard et al. (2002) and Bosch and Steffen (2011)) and find consistent and statistically significant results. Tables are available upon request.

switching costs, we do not find a significant effect. This finding is consistent with the result of Bosch and Steffen (2011), who find that the lead arranger holds larger shares of private companies than necessary to have incentives to monitor borrowers who are subject to high information asymmetries and to convince other lenders to participate in the syndicate. This finding can be explained by the more profitable loans that are given to private firms, and this argument is strongly supported by the results of this paper: In addition to possibly charging larger arrangement fees, banks are able to charge private firms a premium for their own capital constraints; thus, such loans are more profitable than loans to firms that can easily switch lenders. However, we must exercise caution. Thus, the profitability of a loan stems from an increase in monopoly power, which may or may not be exploited by the lead arranger. Our results indicate two important facts: first, the information that is generated for private firms is proprietary on the lead arranger level and thus creates an information monopoly; second, banks do not exploit their monopoly power on a consistent basis. If all of the banks opportunistically exploited their borrowers, then we would not find a weak bank effect; therefore, this argument provides strong support for our theoretical framework in which reputation and discretion are important in bank loan commitments.

In panel B, we further explore our earlier finding that weak bank effects occur only for loans during recessions. Again, only the coefficient for the weak bank proxy is shown in this table. We find the same results across all of the switching cost proxies: consistent with our theoretical framework, weak banks charge higher spreads for firms with high switching costs than for firms with low switching costs. The results are driven by the loans that are issued during recessions. The benchmark model shows that weak banks charged, ceteris paribus, 78 bps higher spreads for loans that are issued in a recession. During expansion phases, we find no significant effect. Depending on the switching cost proxy that is used, the weak bank effect varies between 86 bps and 123 bps.

Some comments must be offered. First, we want to emphasize that our inability to find a weak bank effect for loans that are issued in expansion phases does not imply that information monopolies do not exist in such periods. Such monopolies may or may not exist depending on the quality of a borrower as perceived by outside investors. However, if banks have monopoly power, then either both weak and strong banks exploit their borrowers or neither of them do. Both situations are potential explanations of our result. In a recession, capital-constrained banks charge higher spreads. In a weak economy, banks usually suffer due to an increase in

bad debt. Consequently, in an expansion, banks are more concerned about their future reputations and commit themselves to not exploiting their borrowers. Recessions amplify existing uncertainties in determining the quality of a borrower and thus increase the monopoly power of relationship banks. More importantly, an increase in bad debts and company failures is troubling for some banks and causes them to exploit information-captured borrowers to preserve their own financial health. However, strong banks do not exploit their information monopoly. These banks commit to their borrowers to create closer ties and to increase their future expected income. These results are consistent with our theoretical framework.[14]

5 Robustness checks and discussion

As described previously, our results do not depend on the definition of recession that we have used in this study. This section shows that external events that increase uncertainties in the external capital market induce information monopolies of relationship banks.

To proxy for these uncertainties, we employ the credit spread that is calculated as the difference between Moody's AAA corporate bond and Moody's Baa corporate bond (middle) rates.

We control for these effects by introducing the variable Credit Spread as defined above and re-run our regression[15]. The results are shown in Table VII.

[Table VII]

Model 1 repeats the model that was shown in Table IV. Model 9 includes the credit spread as an additional variable. An increase in credit spreads by one percentage point increases loan spreads by 58 bps. The weak bank proxy remains significant in an almost unchanged magnitude. In model 10, we use interaction terms of the weak bank and credit spread variables.

The results support our theoretical framework. Loan spreads increase by an average of 43 bps if the credit spread increases by one percent. Weak banks charge higher spreads during

[14] We further account for lender country effects by excluding all non-UK banks, and we find that all of our results hold consistently. Tables are available upon request.

[15] Note that credit spread is included in absolute terms in contrast with recession versus expansion and whether loans were issued before or after 2001, which were binary variables.

periods of greater uncertainties and thus exploit information monopolies. Thus, the widening of credit spreads by 1 percent increases the interest rates on loans by an average of 55 bps, which is conditional on a loan being provided by a weak bank (obtained by summing the coefficients of the weak bank indicator variable and the interaction term). However, the coefficient of the weak bank effect is no longer significant; this finding indicates that the weak bank effect is primarily driven by external events that increase the monopoly power of relationship lenders and, more importantly, adversely affects the capital of some banks and thus induces them to exploit borrowers with high switching costs.

Panel B shows further robustness tests that introduce qualitative proxies for bank risk. Prior research has shown that commercial banks are less risky than investment banks because of the trading activities of the latter. Model 11 introduces commercial bank as a dummy variable that is equal to one if a loan was extended by a commercial bank. All of the other control variables remain unchanged. We obtain robust results for the weak bank effect with an increase in loan spreads of 43 bps. Commercial banks charge an average of 27 bps lower spreads. Model 12 excludes all of the other bank variables but includes commercial bank and investment bank as controls for bank risk. Consistent with previous literature, commercial banks charge, on average, 30 bps lower spreads. However, investment banks charge, on average, 238 bps higher spreads. The weak bank coefficient remains highly significant. All of our robustness checks provide strong support for our theoretical framework and our empirical model.

Our matched sample of bank, borrower and loan characteristics allows a clear interpretation of the results. However, there is a possibility of a sample selection bias in unobserved borrower heterogeneity that could bias our results: opaque borrowers might choose weak lenders because such borrowers are denied credit from strong banks. If this situation arises, then the weak banks in our sample have riskier portfolios on average, and our results are driven by (unobserved) borrower risk rather than by bank effects. To control for this concern, we exploit the panel data nature of our sample and re-run our tests using firm-bank fixed effect regressions. However, the main results remain qualitatively unchanged.[16]

[16] The regressions are not reported for brevity but are available from the author upon request.

6 Conclusion

In this paper, we analyze the likelihood of banks to charge idiosyncratic costs to borrowers by comparing firms with high and low switching costs. We obtain results that strong support the existence of information monopolies that enable weak banks to charge higher spreads to borrowers with high switching costs. Further analyses indicate that the results are primarily driven by external events (such as recessions) that increase uncertainties regarding the viability of borrowers with high switching costs and thus amplify the adverse selection (winner's curse) problem. More importantly, these shocks and the associated increase in bad debts and company failures adversely affect the financial health of at least some banks, which respond by charging higher spreads to information-captured firms than their well-capitalized peers. Those (strong) banks probably maintain their commitment with their clients to strengthen their relationships in expectation of higher future income. Our results are both statistically and economically significant and are consistent with the theoretical models of Greenbaum et al. (1989), Rajan (1992) and Boot et al. (1993). Further analyses and robustness checks support the notion that bank effects affect syndicated loan spreads.

There are several ways in which this analysis can be extended further. For example, it might be interesting to follow the previous literature on the bank lending channel by analyzing the investment behavior of private firms that borrow from weak banks. It might be also interesting to analyze the value of bank-borrower relationships in a syndicated loan setting in a more direct manner by applying a panel data approach to examine the development of these relationships over time. By adopting this approach, we may be able to directly test predictions of theoretical models with regard to the manner in which interest rates develop when a bank-borrower relationship evolves. Based on prior research, syndicate structures are sensitive to borrower opaqueness and credit risk. Because periods of recessions increase the overall risk in the economy, it may also be interesting to investigate the change in the structure of loan syndicates across the business cycle.

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Appendix

Variable descriptions

Variable	Definition
	1. Borrower opaqueness/switching cost proxies
Private	Dummy variable equal to 1 if the borrower's legal status is private
Public	Dummy variable equal to 1 if the borrower's legal status is public
Small	Dummy variable equal to 1 if the borrower's sales are below USD 430 million, which corresponds to the 30 percent quantile
Large	Dummy variable equal to 1 if the borrower's sales are above USD 430 million, which corresponds to the 30 percent quantile
Young	Dummy variable equal to 1 if the borrower's age of incorporation is equal or less than 9 years, which is the median age
Old	Dummy variable equal to 1 if the borrower's age of incorporation is higher than 9 years, which is the median age
First-Time Loan	Dummy variable equal to 1 if the borrower has not issued a loan in the syndicated loan market before
Relationship Loan	Dummy variable equal to 1 if the borrower has issued a loan in the syndicated loan market at least once
	2. Weak bank proxies
Weak Bank (Tier 1-Ratio < 6.3% (1st quartile))	Dummy variable equal to 1 if the bank's primary capital ratio is less than 6.3 percent, which corresponds to the 25 percent quantile
Weak Bank (Tier 1-Ratio < 6.8% (Median))	Dummy variable equal to 1 if the bank's primary capital ratio is less than 6.8 percent, which corresponds to the 50 percent quantile
Weak Bank (4.8 < Tier 1-Ratio < 6.8)	Dummy variable equal to 1 if the bank's primary capital ratio is higher than 4.8 percent (1 percent quantile) but less than 6.8 percent (50 percent quantile)
	3. Borrower characteristics
Firm Size	Firm size is the natural logarithm of the borrower's total assets
Leverage Ratio	Leverage ratio is measured as total debt over total assets
Age (since incorporation)	Natural logarithm of the borrower's age since incorporation
Interest Coverage Ratio	Interest coverage ratio is measured as EBITDA over interest expenses
	4. Lead bank characteristics
Loan Loss Provisions	Loan loss provisions are measured as the provisions for loan losses relative to total loans
Non Performing Loans	Non performing loans are measured as the ratio of net charge-offs relative to total assets
Net Loans	Net loans are measured as the ratio of net loans relative to customer & short term funding
Liquid Assets	Liquid assets are measured as the ratio of net loans relative to customer & short term funding
Low Liquid Assets	Dummy variable equal to 1 if the realization of liquid assets lies in the first quartile of its distribution
Total Assets	Total assets are measured as the natural logarithm of the bank's total assets
Commercial Bank	Dummy variable equal to 1 if the mandated arranger is a commercial bank
Investment Bank	Dummy variable equal to 1 if the mandated arranger is an investment bank
Lender Country[17]	Dummy variable for each country, the parent lender is domiciled in

17 Lender parents are domiciled in the following countries: Australia, Bahrain, Belgium, Canada, France, Germany, Hong Kong, Iceland, Ireland Italy, Japan, Korea (South), Luxembourg, Netherlands, Singapore, South Africa, Switzerland, USA, United Kingdom

Appendix

Variable descriptions (continued)

Variable	Definition
	5. Syndicated loan characteristics
All-In Spread Drawn (AISD)	Spread above LIBOR in basis points (bps) of the drawn portion of the loan
Loan Size	Natural logarithm of the facility amount (in US-Dollar)
Maturity	Natural logarithm of the maturity in days
Number of Facilities	Number of facilities in loan deal
Pro-Rata Loan	Dummy variabl equal to 1 if the loan type is Revolver (> or < 1 year), Term Loan A
Institutional Term Loan	Dummy variables equal to 1 if the loan type is Term Loan B, C,…
Performance Pricing	Dummy variable equal to 1 if the LIBOR-Spread is contingent on ex-post performance of the borrower
Secured	Dummy variable equal to 1 if the loan is secured
Unsecured	Dummy variable equal to 1 if the loan is unsecured
Missing	Dummy variable equal to 1 if the secured status of the loan is missing
Covenants	Dummy variable equal to 1 if the loan agreement contains covenants
Loan Purposes[18]	
General Corporate	Dummy variable equal to 1 if the loan issuance purpose is "General Corporate"
Coporate Control	Dummy variable equal to 1 if the loan issuance purpose is "Corporate Control"
Capital Structure	Dummy variable equal to 1 if the loan issuance purpose is "Capital Structure"
Project Finance	Dummy variable equal to 1 if the loan issuance purpose is "Project Finance"
Other	Dummy variable equal to 1 if the loan issuance purpose is "Other"
	6. Market controls
Credit Spread	Difference between Moody's AAA corporate bond and Moody's Baa corporate bond (middle) rates
LIBOR	Three month Euro LIBOR rate from the British Bankers' Association
Loan Issued in Recession	Dummy variable equal to 1 if the loan is issued in a recession. We define that an economy is in recession, when the EuroCOIN Index is below its long run average for at least four consecutive quarters
Revolver Volume	Quantity measure for all revolver loans issued in the same month the loan is issued
Term Loan Volume	Quantity measure for all term loans issued in the same month the loan is issued

[18] Each broad loan purpose group is comprised of the following loan purposes: **(1) General Corporate:** Working Capital, Corporate Purposes, Capital Expenditures, Equipment Purchases, Trade Finance, IPO Related Financing; **(2) Corporate Control:** Acquisition Line, Takeover, LBO/MBO, Defensive Bid; **(3) Capital Structure**: CP Backup, Credit Enhancement, Debt Repayment, Recapitalization, Stock Buyback; **(4) Project Finance**: Project Finance, Aircraft & Ship Finance; **(5) Other**: Exit Financing, Lease Finance, Other, Real Estate, Securities Purchase, Spinoff, Telecom Buildout, Undisclosed, CDO.

Table I Summary statistics. This table presents descriptive statistics for completed dollar denominated loans originating between 1996 and 2005 to U.K. companies, excluding regulated and financial industries. Borrowers' and lenders' characteristics are computed as of one year prior to the origination of the loan. For definitions of other dependent variables, please see the appendix. The full sample includes all loans facilities, for which all loan characteristics are simultaneously available. The matched sample (sample with firm & bank characteristics) comprises only those loan facilities for which bank, borrower and loan characteristics are simultaneously available

	Full sample (N=3,146)			Sample with firm & bank data (N=988)		
	Mean	**Median**	**StdDev**	**Mean**	**Median**	**StdDev**
All-In Spread Drawn (bps)	184.21	175	153.56	165.68	145	140.06
Loan Size ($MM)	368	126	929	463	166	121
Maturity (months)	78	78	47	66	60	35
Institutional Term Loan (dummy)	0.37	-	0.48	0.32	-	0.47
Pro-Rata Loan (dummy)	0.45	-	0.5	0.49	-	0.5
Performance Pricing (dummy)	0.13	-	0.34	0.18	-	0.38
Covenants (dummy)	0.19	-	0.4	0.19	-	0.4
Number of Facilities	3.71	3	2.66	3.33	3	2.23
Secured (dummy)	0.077	-	0.27	0.07	-	0.25
Unsecured (dummy)	0.025	-	0.16	0.03	-	0.18
Loan Purposes						
General Corporate (dummy)	0.12	-	0.33	0.12	-	0.33
Coporate Control (dummy)	0.51	-	0.5	0.47	-	0.5
Capital Structure (dummy)	0.28	-	0.45	0.36	-	0.48
Project Finance (dummy)	0.05	-	0.22	0.03	-	0.16
Term Loan Volume ($MM)	3,662	2,761	2,874	3,715	2,910	2,653
Revolver Loan Volume ($MM)	4,477	4,116	2,797	4,713	4,138	2,881
Private (dummy)	0.63	-	0.48	0.5	-	0.5
Small (dummy)	0.32	-	0.47	0.4	-	0.49
Young (dummy)	0.44	-	0.5	0.45	-	0.5
First-Time Loan (dummy)	0.53	-	0.5	0.45	-	0.5
Firm Size ($MM)	-	-	-	4,470	940	22,673
Age (years)	-	-	-	19.9	9	19.93
Leverage Ratio (%)	-	-	-	0.41	0.35	0.28
Interest Coverage Ratio (%)	-	-	-	2.86	2.63	0.88
Total Assets ($MM)	-	-	-	668	639	332
Net Loans (%)	-	-	-	68.12	67.89	22.65
Liquid Assets (%)	-	-	-	26.37	23.34	27.76
Non Performing Loans (%)	-	-	-	0.62	0.49	0.39
Loan Loss Provisions (%)	-	-	-	0.01	0.01	0.004
Investment Bank (dummy)	-	-	-	0.01	-	0.07
Commercial Bank (dummy)	-	-	-	0.57	-	0.5

Table II Loan, borrower and bank characteristics – Clustered according to borrower asset size. This table presents descriptive statistics for completed dollar denominated loans originating between 1996 and 2005 to U.K. companies, excluding regulated and financial industries. Loan, borrower and bank characteristics are grouped according to borrower asset size. Borrowers' and lenders' characteristics are computed as of one year prior to the origination of the loan. For definitions of other dependent variables, please see the appendix. We include only loans for which bank and borrower characteristics are available (N=988)

Firm Size ($BN)	Loan Characteristics		Borrower Characteristics		Bank Characteristics	
	Maturity (months)	Spread (bps)	Firm Leverage (%)	Interest Coverage (%)	Tier-1 Ratio (%)	Equity Capital Ratio (%)
< 0.2	106.7	206.75	48.714	19.23	7.055	4.155
0.2-0.5	73.92	187.58	39.905	26.08	7.834	4.575
0.5-1	62.79	173.4	38.952	29.450	8.162	5.405
1-3	58.94	156.37	41.656	5.05	8.063	4.873
3-10	47.06	85.55	34.16	8.23	7.97	5.569
> 10	44.18	59.5	27.101	3.13	7.648	5.679

Table III Relationships among proxies for bank dependence. The table shows the relationship among switching cost proxies. Private is a dummy variable equal to one if the firm is private. Small is a dummy variable equal to one if the company's sales figure is below USD 430 million, which is the 30 percent quantile. Young is a dummy variable equal to one if the firm's age since incorporation is equal or less than 9 years, which is the median age in our sample. First time is a dummy variable equal to one if the firm borrows for the first time in the syndicated loan market

	Share That Is			
	Private	Small	Young	First time
Private	1	0.43	0.96	0.62
Public	0	0.19	0.82	0.43
Small	0.78	1	0.98	0.66
Large	0.57	0	0.87	0.48
Young	0.65	0.36	1	0.57
Old	0.04	0.02	0	0.32
First Time	0.70	0.41	0.95	1
Prior Lending Relationship	0.38	0.34	0.43	0

Table IV Loan spreads and bank characteristics. The dependent variable is the All-In-Spread reported in Dealscan. All of the regressions are clustered at the lender parent level. Models 1 and 2 only include proxies for bank portfolio risk; models 3 and 4 introduce the bank liquidity risk. Model 5 includes all control variables for portfolio and liquidity risk. Borrower, loan and market control variables remain unchanged across all models

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Weak Bank (Tier 1-Ratio < 6.3%)	40.237***	32.732***	19.858*	18.170*	33.793***
	(.003)	(.005)	(.07)	(.094)	(.007)
Loan Loss Provisions (% of Total Loans)	-5.587**	-6.880***			-5.854**
	(.017)	(.003)			(.016)
Non Performing Loans (% of Total Assets)	2.758*				1.955
	(.089)				(.216)
High Nonperforming Loans		21.523**			
		(.028)			
Net Loans (% of Customer & Short Term Funding)			-0.531**		-0.176
			(.034)		(.558)
Liquid Assets (% of Customer & Short Term Funding)				0.723***	-0.084
				(0.000)	(.769)
Ln (Total Assets Bank)	25.545**	32.221***	3.882	12.854	30.810***
	(.02)	(.003)	(.664)	(.159)	(.004)
Institutional Term Loan	18.373*	42.521***	35.576***	36.658***	43.527***
	(.077)	(0.000)	(.001)	(0.000)	(0.000)
Secured	58.784***	62.860***	54.307***	55.042***	61.207***
	(.001)	(0.000)	(0.000)	(0.000)	(0.000)
Performance Pricing	-19.291*	-20.857*	-26.401***	-24.822**	-20.457*
	(.085)	(.053)	(.009)	(.014)	(.061)
Covenants	18.665*	18.731*	24.431**	25.090***	20.146**
	(.067)	(.058)	(.01)	(.008)	(.042)
Market Controls (Revolver & Term Loan Volume, LIBOR)	Yes	Yes	Yes	Yes	Yes
Borrower Credit Risk (Age, Leverage, Interest Coverage, Borrower Size)	Yes	Yes	Yes	Yes	Yes
Loan Controls (Loan Size, Maturity, Number of Facilities, Unsecured)	Yes	Yes	Yes	Yes	Yes
Loan Purpose (Corporate Control, Capital Structure, General Corporate Purpose)	Yes	Yes	Yes	Yes	Yes
Industry (1-digit-SIC-Codes)	Yes	Yes	Yes	Yes	Yes
Lender Country	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes
Intercept	Yes	Yes	Yes	Yes	Yes
Observations	988	988	988	988	988
Adjusted R-squared	0.3545	0.3942	0.3737	0.378	0.3933

p-values in parentheses

*** p<0.01, ** p<0.05, * p<0.10

Table V **Loan spreads and bank characteristics.** The dependent variable is the All-In-Spread reported in Dealscan. All of the regressions are clustered at the lender parent level. The first column repeats model 1 in Panel A. All control variables from regression models 1 to 5 from Panel A are included in the regressions. Coefficients of these control variables are not shown for brevity. Models 6 and 7 differ from model 1, including a different threshold to define a weak bank. Model 1 uses the 1st quartile as threshold, model 6 the median and model 7 the difference between the 1 percent quantile and the median. The interaction terms in model 8 use the specifications from model 1

	Model 1	**Model 6**	**Model 7**	**Model 8**
Weak Bank (Tier 1-Ratio < 6.3% (1st quartile))	40.237***			
	(.003)			
Weak Bank (Tier 1-Ratio < 6.8% (Median))		40.237***		
		(.003)		
Weak Bank (4.8 < Tier 1-Ratio < 6.8)			20.770**	
			(.05)	
Loan Loss Provisions (% of Total Loans)	-5.587**	-5.587**	-5.738**	-5.817**
	(.017)	(.017)	(.015)	(.039)
Non Performing Loans (% of Total Assets)	2.758*	2.758*	1.871	2.629*
	(.089)	(.089)	(.243)	(.093)
Weak Bank * Year 1996				-36.772*
				(.095)
Weak Bank * Year 1997				-10.153
				(.569)
Weak Bank * Year 1998				-29.141**
				(.037)
Weak Bank * Year 1999				23.781
				(.18)
Weak Bank * Year 2000				6.308
				(.86)
Weak Bank * Year 2001				10.589
				(.659)
Weak Bank * Year 2002				22.065
				(.292)
Weak Bank * Year 2003				91.887***
				(.008)
Weak Bank * Year 2004				73.064***
				(.001)
Weak Bank * Year 2005				41.286***
				(.007)
Ln (Total Assets Bank)	25.545**	20.7703**	25.544**	28.047***
	(.02)	(.05)	(.02)	(.001)
Observations	988	988	988	988
Adjusted R-squared	0.3545	0.3545	0.3498	0.4316

p-values in parentheses

*** p<0.01, ** p<0.05, * p<0.10

Table VI Loans spreads for bank dependent and not-bank dependent borrowers across the business cycle. The dependent variable is the All-In-Spread reported in Dealscan. All regressions are clustered at the lender parent level. Only the coefficient for the weak bank proxy is shown as the proxy (Tier 1-Ratio < 6.3% (1st quartile)). Each coefficient represents an individual regression. All borrower, loan and market controls are identical to the models shown in Table 1-Panel A. Private is a dummy variable equal to one if the firm is private. Small is dummy variable equal to one if the company's sales figure is below USD 430 million, which is the 30 percent quantile. Young is dummy variable equal to one if the firm's age since incorporation is equal or less than 9 years, which is the median age in our sample. First time is a dummy variable equal to one if the firm borrows for the first time in the syndicated loan market. Panel A shows the full sample regression results. Panel B shows subsamples for loans issued in expansions and recessions, respectively, based on the EuroCoin Index

	Panel A	**Panel B**	
	Full sample	**Loan issued in expansion**	**Loan issued in recession**
Benchmark Model (Model 1)	40.237***	14.473	77.93***
	(.003)	(.465)	(.000)
Switching Cost Proxies			
Private vs. Public			
Private	79.343***	44.558	98.346***
	(.000)	(.322)	(.002)
Public	-9.049	-12.917	37.867
	(.512)	(.337)	(.17)
Small vs. Large			
Small	76.569***	71.724	123.453***
	(.003)	(.18)	(.002)
Large	-7.956	-27.646	9.524
	(.643)	(.185)	(.77)
Young vs. Old			
Young	48.931***	16.957	86.179***
	(.002)	0.464	(.000)
Old	23.514	-25.762	1.924
	(.191)	(.528)	(.859)
Pior Lending Relationships vs. First-Time Loan			
First-Time Loan	60.447***	3.287	111.663***
	(.001)	(.891)	(.000)
Prior Lending Relationship	5.786	-4.356	39.696
	(.796)	(.916)	(.21)

p-values in parentheses
*** p<0.01, ** p<0.05, * p<0.10

Table VII Accounting for alternative macroeconomic and bank risk proxies. The dependent variable is the All-In-Spread reported in Dealscan. All of the regressions are clustered at the lender parent level. Panel A shows the results employing credit spreads as an alternative proxy for external shocks. Panel B introduces alternative (qualitative) variables for bank risk. All of the other control variables remain unchanged compared to model 1

	Panel A			Panel B	
	Model 1	**Model 9**	**Model 10**	**Model 11**	**Model 12**
Weak Bank (Tier 1-Ratio < 6.3% (1st quartile))	40.237***	40.329***	-49.045	43.137**	29.810***
	(.003)	(0.003)	(.33)	(.014)	(0.007)
Credit Spread		58.057***	43.188**		
		(.004)	(.048)		
Weak Bank * Credit Spread			104.468*		
			(.066)		
Commercial Bank				-26.960**	-29.863***
				(.036)	(.002)
Investment Bank					237.820***
					(.000)
Loan Loss Provisions (% of Total Loans)	-5.587**	-5.218**	-5.133**	-5.300**	
	(.017)	(.026)	(.028)	(.029)	
Non Performing Loans (% of Total Assets)	2.758*	2.112	2.414	2.421	
	(.089)	(.195)	(.14)	(.12)	
Ln (Total Assets Bank)	25.545**	23.737**	24.144**	16.106*	2.868
	(.02)	(.03)	(.027)	(.051)	(.761)
Institutional Term Loan	18.373*	18.577*	18.226*	43.896***	36.534***
	(.077)	(.072)	(.078)	(.000)	(.000)
Secured	58.784***	62.755***	64.138***	57.876**	54.088***
	(.001)	(.000)	(.000)	(.031)	(.000)
Performance Pricing	-19.291*	-19.275*	-19.594*	-17.034	-19.912**
	(.085)	(.083)	(.078)	(.101)	(.048)
Covenants	18.665*	17.940*	18.005*	18.852*	23.059**
	(.067)	(.077)	(.076)	(.059)	(.014)
Market Controls (Revolver & Term Loan Volume, LIBOR)	Yes	Yes	Yes	Yes	Yes
Borrower Credit Risk (Age, Leverage, Interest Coverage, Borrower Size)	Yes	Yes	Yes	Yes	Yes
Loan Controls (Loan Size, Maturity, Number of Facilities, Unsecured)	Yes	Yes	Yes	Yes	Yes
Loan Purpose (Corporate Control, Capital Structure, General Corporate Purpose)	Yes	Yes	Yes	Yes	Yes
Industry (1-digit-SIC-Codes)	Yes	Yes	Yes	Yes	Yes
Lender Country	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes
Intercept	Yes	Yes	Yes	Yes	Yes
Observations	988	988	988	988	988
Adjusted R-squared	0.35	0.36	0.36	0.394	0.3934

p-values in parentheses

*** p<0.01, ** p<0.05, * p<0.10