Syndicated Loans, Lending Relationships and the Business Cycle

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Abstract

The syndicated loan market, as a hybrid between public and private debt markets, comprises financial institutions with access to valuable private information about borrowers as a result of close bank-borrower relationships. In this paper, we seek empirical evidence for the costs of these relationships in a sample of UK syndicated loan contracts for the time period 1996 through 2005. Using detailed financial data for both borrowers (private and public companies) and for financial institutions, we find that undercapitalized banks charge higher loan spreads for loans to opaque borrowers using various measures for borrower opaqueness and controlling for bank, borrower and loan characteristics. We further analyze this hold-up effect over the business cycle and find that it only prevails during recessions. In expansion phases, however, we do not find evidence for banks exploiting their information monopoly. This finding is consistent with theories on bank reputation in bank loan commitments. Ambiguity about borrower financial health, which induces the information monopoly in the first place, also gives banks the discretion to exploit or not exploit informational captured borrowers. Our findings are both statistically and economically significant and robust to alternative bank and macroeconomic risk proxies. We address potential concerns about unobserved borrower heterogeneity exploiting the panel data nature of our sample. Using firm-bank fixed effect regressions, we find supporting evidence for our theoretical framework.

JEL Classifications: G14, G21, G22, G23, G24

Keywords: Syndicated loans; Hold-up; Lending relationships; Business cycle

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1. Introduction

There is an extensive literature on the benefits of bank borrower relationships. James (1987) and Lummer & McConnell (1989) document positive share price reactions for companies associated with the announcement of bank loan commitments. Since then, many researchers have attributed these benefits to the monitoring and certification function of relationship banks. Even today, where loans have been much more commoditized[2], bank loan relationships are still found to be an important factor in corporate finance.[3] However, the costs of bank-borrower relationships have only hardly been explored.[4] This paper contributes to the strand of research arguing that costs associated with lending relationships are economically significant. We show that capital constrained banks exploit their information monopoly over borrowers with high costs of switching lenders charging a higher loan spread than their well capitalized peers (so called "weak bank effect"). This effect only prevails in recessions. In expansion phases, however, we find evidence consistent with the idea of commitment of lenders vis-à-vis their borrowers.

In our empirical analysis, we employ a dataset of UK syndicated loan agreements for the time period 1996 through 2005. According to Boot (2000), syndicated loans are positioned between relationship loans and arm's – length financing. Preece & Mullineaux (1996) find a positive announcement effect for syndicated debt, which decreases in the number of lenders in the syndicate (i.e. when loans resemble public debt issues). Given these benefits of lending relationships, the syndicated loan market is an interesting setup to explore the existence and costs of information monopolies further.

In this paper, we seek empirical evidence for information monopolies using a novel approach. We build on theoretical models as per Greenbaum et al. (1989), Sharpe (1990) and Rajan (1992). These authors show that relationship lenders have an information monopoly over outside investors which effectively locks-in the borrower and allows banks to extract monopoly rents. This stems from the uncertainty of outside investors regarding the quality of the borrower. We recognize two (albeit related) dimensions of uncertainty: Firstly, there is an adverse selection (winner's curse) problem. Secondly, there are external events amplifying the adverse selection component. We find that increased uncertainty through macroeconomic

[2] E.g. loans are syndicated, traded in secondary markets or are securitized.
[3] Altman et al. (2004)
[4] Berger and Udell (1995), Petersen and Rajan (1994, 1995), Schenone (2005) and Santos and Winton (2005) are notable exemptions.

fluctuations (represented through changes in GDP growth and volatility of credit spreads) determine the existence of information monopolies.

Banks credit policies fluctuate over the business cycle and they vary countercyclical.[5] This lending cycle is depicted in Figure 1. The graph shows the results of a survey conducted by the Federal Reserve Bank in Washington on a regular basis. Evidently, there is some variation in credit policies by banks and a sharp tightening of credit standards in the early 1990s and 2000 which overlaps with periods of economic contraction (both in Europe and the US). Lending standards seem to vary for both small and large borrowers in a similar way. As shown by Ruckes (2004), the rationale is profit-maximizing behaviour of banks instead of carelessness of bankers. During recessions, the average quality of borrowers in the pool of credit applicants is low. The costly screening process therefore serves to identify a high quality borrower in this pool. Since there is a high probability of having a negative credit assessment (which means the applicant is rejected), the marginal benefit from screening is low resulting in low intensity screening. Banks only possess very imprecise information about individual borrowers and base their lending decisions on general economic conditions. The lending volume is hence low during these periods. In other words, lending standards are tight during recessions. If the economy picks up, the average quality of the borrower improves thereby increasing the probability that credit assessments turn out positive. This in turn increases the marginal benefit of screening increasing the intensity of screening by banks. However, beyond some point, the average quality is too high, marginal benefits from screening decrease and, therefore, screening intensity drops again. The credit standards is lax in good times increasing the default risk of the banks' portfolios. This is a concern particularly for poorly capitalized banks. If the bad loans extended in good times default during recessions, these banks might suffer a severe hit on their capital compromising their financial stability. The natural question evokes whether these banks price their loans differently compared to well-capitalized banks.

[5] "There is doubtless an unfortunate tendency among some, I hesitate to say most, bankers to lend aggressively at the peak of a cycle and that is when the vast majority of bad loans are made"*(Alan Greenspan, March 2001)*

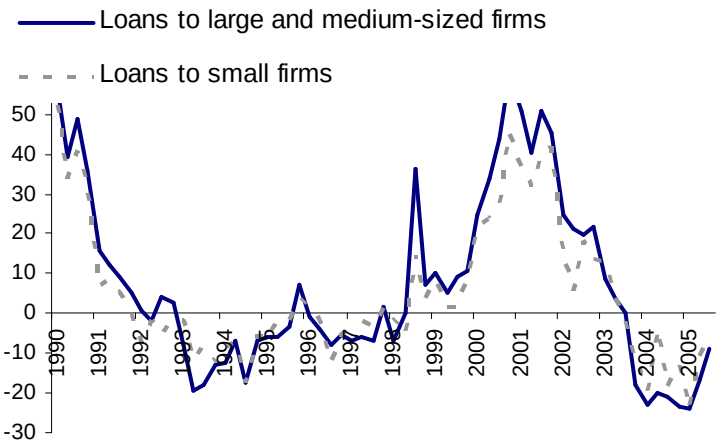

Figure 1: Net Percentage of Domestic Respondents Tightening Standards

Source: Senior Loan Officer Opinion Survey on Bank Lending Practices (Data available on www.federalreserve.gov/boarddocs/surveys)

Indeed, comparing borrowers with high and low switching costs, we find that undercapitalized banks charge higher loan spreads for loans to firms facing 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 what is justified by credit risk for borrowers with high cost of switching lenders. This finding is consistent with reputation considerations and discretion in bank loan commitments. Ambiguity about borrower financial health, which induces the information monopoly in the first place, also triggers bank discretion to renege in adverse situations (Boot, Greenbaum and Thakor (1993)). Banks put their reputation on the line offering these loan commitments. Well capitalized banks honour their commitment not exploiting their information monopoly, thereby enhancing their reputation (and potentially increasing future fee income). For weak banks, in contrast, preserving their own financial health outweighs the benefits of future reputation and they charge their borrowers a higher spread. These results are robust to alternative measures of bank and macroeconomic risk proxies.

Our study has a notable advantage over prior research in this area. Information problems are typically greater for smaller (private) firms. Our sample consists of private companies to a large extent. The theoretical models that provide the foundation of this study rest on the assumption that there is private information which is not observable by outsiders, an assumption that is particularly true for our sample. As a consequence, we are able to provide greater insight into the size of informational rents that banks can earn in the syndicated loan market. To the best of our knowledge, there has been no study on

informational rents and the behaviour of loan spreads across the business cycle in the European loan market.

However, there are some caveats to our analysis which we want to address here. These caveats are associated with the fact that our sample is drawn from the syndicated loan market which is structurally different to the single loan market. Lending syndicates are supposable large and the syndicated loan market is perceived as being extensively competitive which argues against finding any informational rent in the syndicated loan market. Nonetheless, we find evidence for the existence of information monopolies and a reduction in competition for some borrowers. More than 95 percent of our loans have a single lead arranger resembling the single lender in a bilateral lending relationship. This is true since the lead arranger negotiates the loan terms with the borrower and is also responsible for monitoring the borrower over the lifetime of the loan. As shown by Sufi (2006 (forthcoming)) for large US firms and Bosch and Steffen (2006) recently for (mostly) private but also public firms in the UK market, information asymmetries evokes a moral hazard problem within the syndicate because of the monitoring role of the lead arranger. Both papers have shown that he has to hold a larger share of the loan if information asymmetries are more pronounced to have incentives to monitor the borrower diligently. Furthermore, syndicates are more concentrated given other banks higher incentives to monitor the lead arranger. In other words, there is empirical evidence that information generated on the lead arranger level is not observable by outside investors which finally justifies the assumptions of the theoretical models building the foundation of this study.

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 might bias our results: opaque borrowers might choose weak lenders because they are denied credit from strong banks. If that is the case, weak banks in our sample have on average riskier portfolios 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 to test 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.

The paper proceeds as follows. In section 2, we discuss the different areas of research related to this paper. We then introduce the theoretical framework and show how we implement this framework empirically. In section 4, we describe the data and variables used in this study. All results and robustness tests are provided in section 5. The last section concludes.

2. Related Literature

This paper is specifically related to research on the unique role of banks in corporate finance. Information asymmetries in external capital markets are pivotal to explain the existence of financial intermediaries. Theories of financial intermediation emphasize the advantage of banks in solving information problems (Leland and Pyle (1977), Diamond (1984), Diamond (1991), Ramakrishnan and Thakor (1984), Boyd and Prescott (1986)). Bank-borrower relationships play a significant role in reducing information problems: interacting with their borrowers closely over time, banks produce information about the borrower and firms can raise capital which they were not able to raise from non-relationship lenders (see e.g. Fama (1985) and Hoshi, Kashyap and Scharfstein (1993)). Another dimension of relationship lending is financial services purchased by borrowers in addition to bank loans. Observing the borrower's cash flows and operating activities increases the precision of the bank's information. Furthermore, cross-selling allows to spread fixed costs over multiple products (Allen, Saunders and Udell (1991), Nakamura (1991)).

Empirical research on the unique role of banks provides mostly indirect evidence for the value of bank-borrower relationships focussing on the increase in the market value of equity of the firm as a result of the announcement of bank loans (e.g. James (1987), Lummer and McConnell (1989), Hoshi, Kashyap and Scharfstein (1990), James and Wier (1990), Shockley and Thakor (1997), Kwan (1994) and Billett, Flannery and Garfinkel (1995)). A common conclusion of these studies is that bank-borrower relationships are beneficial and produce abnormal returns if new loans and loan renewals are announced. There is also empirical evidence that losing a bank-borrower relationship is costly. Slovin, Sushka and Polonchek (1993) analyze the impact of the failure of Continental Illinois on the stock prices of its borrowers. They find that especially for borrowers without multiple (i.e. other) banking relationships the adverse stock price movement was notably stronger arguing in favour of the importance of information generated in a bank-borrower relationship which is not easily transferable to or observable by outsiders.

Other theoretical models analyze how interest rates on bank loans evolve over time. One strand of models demonstrates conditions under which interest rates decline over the course of the bank-borrower relationship (Petersen and Rajan (1994) and Boot and Thakor (1994)). Another strand, however, argues that banks subsidize borrowers at the beginning of their relationship in the expectation of future rents. Hence, interest rates are supposed to increase over the duration of the relationship (Greenbaum, Kanatas and Venezia (1989), Sharpe (1990), Rajan (1992) and Wilson (1993)). Direct tests of these models are performed by Petersen and Rajan (1994) and Berger and Udell (1995) using data of small, not listed companies. These studies have two advantages over the above mentioned studies on bank uniqueness: small, not listed companies belong to the class of borrowers for which information problems are most severe and close bank relationships most beneficial. Further, they use the duration of the bank-borrower relationship as measure of the strength of the relationship as opposed to the "new versus renewal" measure. However, their results were mixed. Only Berger and Udell (1995) were able to find significant evidence for the benefits of relationship lending, i.e. they find a negative relationship between interest rates and duration of the relationship.[6]

Empirical literature analyzing the impact of financial health of banks on borrowers is limited. Closest to this study is the paper by Hubbard, Kuttner and Palia (2002) who study the impact of bank capital on interest rates on loans. They argue that the existence of switching costs drive the negative relationship between bank capital and loan spreads. In the absence of switching costs, however, this effect should be nil. Their study suffers from 3 important drawbacks: Firstly, they focus on large, publicly listed companies. This might understate the true impact of bank capital on cost of funds because firms for which switching costs should be more pronounced (i.e. private firms) are not present in their sample. Secondly, their sample period is rather small (1987-1992). A bank channel effect for business cycle and monetary transmission can therefore only hardly be shown. Thirdly, in addition to the impact on loan spreads, some borrower might also be denied credit, which cannot be analyzed with their data. In our study, we account for the first two effects. Employing a dataset comprising private firms to a large extent, we suppose to find higher weak bank effects than in the study by Hubbard, Kuttner and Palia (2002). Furthermore, our analysis focuses on a longer time frame (1996-2005) and explicitly accounts for business cycle effects on loan spreads.

[6] In contrast to Petersen and Rajan (1994) they included only loan commitments which might (according to the authors) explain the different results. We discuss this argument further in the empirical analysis.

Other studies incorporating both borrower and bank characteristics build on Hubbard, Kuttner and Palia (2002). Coleman, Esho and Sharpe (2006) employ a novel, ex-ante proxy for monitoring and find that monitoring is a significant determinant of both loan maturity and loan pricing. Hao (2003), add as additional determinant for loan pricing the number of lead banks in the syndicate. He argues that multiple lenders affects the lenders' effectiveness of monitoring and the determination of loan prices due to duplication of monitoring or free-riding incentives and finds a positive relationship between the number of lead banks within the syndicate and loan spreads. Both do not analyze the impact of bank effects on loan spreads for bank dependent versus not bank dependent borrowers as we do in this study. Further, we explicitly exclude syndicate structure characteristics from the regressions. We argue that the number of lead banks proxies for the competition for specific classes of borrowers and is driven by the transparency of the borrower. However, as shown by Ivashina (2005), including syndicate structure in the empirical model introduces simultaneity problems which we want to avoid here. As we have shown that the syndicate structure is driven by information asymmetry in Bosch and Steffen (2006), we implicitly account for competition with our switching cost proxies.[7]

This paper is also related to the few existing studies on the pricing of syndicated loans. Moerman (2005) analyzes the effect of information quality on the pricing of syndicated debt contracts. She measures information quality employing bid-ask spreads from the secondary loan market and finds that higher bid-ask spreads lead to higher spreads on loans issued subsequently by the borrower. Bosch (2006) focuses on how the information asymmetry associated with the borrowing firm affects its syndicated loan spreads. His study is motivated by theoretical asset pricing literature showing that information asymmetries are a source of systematic risk. Bosch finds that the amount of publicly available firm information systematically affects the loan spreads charged to the borrower. In particular, analyst coverage by stock exchange listings and third party certification by credit ratings increase borrower transparency, and thus lower interest spreads. Furthermore, Bosch documents that prior firm-lender relationships mitigate borrower information asymmetries and reduce loan spreads, whereas bank reputation is found to have no effect. Ivashina (2005) analyzes the impact of syndicate structure on loan spreads and finds that, (carefully) accounting for simultaneity

[7] This argumentation contradicts with Hao (2003). He finds a positive impact of number of lead banks on the price of loans. We argue, supported by our descriptive statistics, that fewer number of lead banks proxy for reduced competition which implies a negative relationship between number of lead banks and spreads.

problems in setting loan spreads and determining syndicate structures, a higher share of the loan held by the mandated arranger reduces the loan spread charged to the borrower.

All studies accentuate the importance of asymmetric information in setting syndicated loan spreads. We build on this line of thought arguing that information asymmetries in external capital markets drive (in our case) the costs of banking relationships for bank dependent borrowers.

3. The Costs of Banking Relationships: Theoretical Framework and Empirical Implementation

This paper draws from the theoretical models demonstrating conditions under which interest rates increase over the course of bank-borrower relationships. Greenbaum, Kanatas and Venezia (1989), Sharpe (1990) and Rajan (1992) are important contributions which build the microeconomic foundation of this study.

A common thread to all models is that a bank acquires proprietary (albeit imperfect) information in the process of lending to the firm which is unavailable to outside lenders and effectively locks-in the borrower. The latter also incurs additional costs in searching a new lender. [8] The incumbent (relationship) bank has an informational advantage over the competitor banks which allows the former to extract a rent. A crucial determinant of the monopoly power is the uncertainty of the competitor banks about the quality of the borrower. One dimension of this uncertainty component is an adverse selection problem (the 'winner's curse') as modelled e.g. by Greenbaum, Kanatas and Venezia (1989) and Rajan (1992). Assuming that the relationship bank knows that the borrower will fail or succeed with certainty, it only bids for the loan 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, the competitor bank earns a negative expected profit.[9] Therefore, the incumbent bank will adjust the offer according to its belief about the quality of the borrower. The higher the perceived quality of the borrower, the lower the lower the lending rate because the competitor bank bids more aggressively. The lower the perceived quality of the borrower, the higher the lending rate. A second dimension of uncertainty is the macroeconomic environment. During recessions, the uncertainty regarding the quality of the borrower increases and competitor

[8] For further information about search costs see e.g. (1995)
[9] This argument assumes identical funding costs of incumbent as well as competitor bank.

banks price theirs loans less aggressively. If uncertainty regarding borrower quality is high, firms face higher switching costs increasing the monopoly power of relationship banks.

However, having monopoly power over borrowers does not necessarily imply that banks exploit this power by charging higher spreads. Boot, Greenbaum and Thakor (1993) have shown that ambiguity about borrower financial health, which induces the informational advantage of the relationship lenders in the first place, also triggers bank discretion. As Boot, Greenbaum and Thakor (1993) put it, "[in these states],…the bank's commitment then becomes an illusory promise." In other words, reputation considerations of the relationship bank constitute a commitment device: the expectation of banks to enhance their reputation and earn higher income in the future commits them not to exploit their monopoly power. Nonetheless, relationship banks might not commit to the promise not to exploit the borrower if their reputation is less important than their current financial stability. They then may extract a rent from their borrowers to preserve their own financial health. In other words, having an information monopoly does not mean that banks exploit their borrowers all the time, but they might exploit them a bit, if they themselves are in a bad condition.[10] The answer to the question whether banks exploit their informational captured borrowers is therefore ultimately an empirical one.

In order to implement this framework, we have to accomplish two thinks: First, we have to classify the borrowers according to their switching costs. Second, we need to account for a bank's financial health. We start with the classification of the borrowers.

In our empirical strategy, we take a different view than taken by Petersen and Rajan (1994, Petersen and Rajan (1995) and Berger and Udell (1995). Following Schenone (2005), we accentuate the existence of switching costs as the condition for banks to exploit their information monopoly. Our approach significantly differs from the methodology in her study, as we perform a cross-sectional analysis to analyze whether capital constrained banks charge higher spreads to informational opaque borrowers, using a variety of switching costs proxies.

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) investors in external capital markets. The better these investors are informed, the more precise their belief and the more aggressive their bid. This increases the probability that the borrower switches to other lenders and increases competition for the

[10] There is some evidence for this effect in Hubbard et al. (2002). Due to time series limitation of their data, they could not explore this idea further.

borrower which in 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, and hence information asymmetries are supposed to be particularly large between these firms and (non relationship) investors. The second proxy is ***Small vs. Large***. Following Gertler and Gilchrist (1994), we choose the 30 percent quantile of sales as cutoff point for small firms. They found that firms within the size category rely more on information-intensive financing. The third proxy is ***Young vs. Old***. Young firms lack a track record of successful completed projects and outside investors are uncertain about the management and potential growth options. 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 e.g. pointed out by Ivashina (2005), previous relationships reveal the borrower reputation in the market and are associated with lower spreads. In other words, previous relationships reduce the informational advantage of the relationship bank.

We further account for bank financial health using a ***Weak Bank*** specification similar to the one used in Hubbard, Kuttner and Palia (2002). We elaborate on this specification in section 4.2.

4. Data and Methodology

Data

The data for this study are obtained from five different sources – the Dealscan database from Loan Pricing Corporation (LPC), UK Companies House, van DIJK's Bankscope database, Datastream[11], and the Centre for Economic Policy Research (CEPR).

We examine syndicated loans over the time period 1996 through 2005 only for UK borrowers covered by Dealscan.[12] All relevant loan characteristics, i.e. loan amount, spread (plus fees), deal active date, time to maturity, loan purpose and loan type are extracted from

[11] We get information on interest rates and stock market volatility from Datastream. We comment on these variables in the respective part of the analysis.
[12] Carey, Post and Sharpe (1998)

this database.[13] We further need identifiers for borrower and lender identity to match the loan data to the other databases. Lenders are identified using lender name, lender parent name and country; the variables name, region / country and SIC classification were used to identify the borrowers. Since Dealscan lacks all relevant borrower information, we consult actual company reports obtained from UK Companies House[14] to fill in the missing information. Furthermore, we use Dun & Bradstreet's Hoovers database to obtain information whether a public firm is stock exchange listed and on which stock exchange(s) it is listed.

We supplemented the information for the lead lender with data from Van DIJK's Bankscope database. Bankscope contains information on over 25,000 banks worldwide including detailed financial statement data and (bank and country) ratings. We carefully account for loans issued by different subsidiaries of the same lender parent attributing each loan to the lender parent. All bank financial variables are therefore extracted on the lender parent level.[15] Both, borrower and lender financial data are taken from the year prior to the loan transaction.

Our raw sample contained 5,063 syndicated loans issued to UK borrowers. Accounting for loans which are not fully confirmed and show structural inconsistencies and loans to borrowers from regulated and financial industries, we deleted 739 loans from the sample. Usable information on loan prices was only available for 3,146 of the remaining loans. We further required joint availability of borrower and lead bank data,[16] and also censored observations of the tier 1 capital ratio at the 99 percent level. Our final sample consists of 988 loan transactions representing 305 different UK based firms and 99 different lead banks.

We identify recessions using the EuroCOIN Index provided by the Centre of Economic Policy Research (CEPR) as 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 Euro area GDP – after the removal of

[13] One loan regularly consists of several facilities. These facilities are not typically identical, but differ in terms of spread, maturity and lender composition. Further, each facility is associated with a particular loan type. Especially in the context of relationship lending, it is crucial to separate commitment loans (which are so-called "relationship loans") and term loans (which are "transaction loans"; see e.g. Berger and Udell (1995)). Investors in these loans are typically very different. Therefore, we conduct all analysis at the facility level. However, in one of our robustness checks, we include only revolver (commitment) loans and hence implicitly account for "deal versus facility level" concerns in this part of the analysis. Our results, however, remained largely unchanged.

[14] Companies House is the national institution responsible for storing all company information provided under the UK's Companies Act 1985. Information provided includes all companies' filings, industry affiliation, legal form as well as date of incorporation.

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

[16] We loose some observations because the lead bank shown in Dealscan is no bank but rather an institutional investor.

measurement errors, seasonal and other short-run fluctuations. In other words, the index represents only the cyclical component of GDP growth.[17] The index started in January 1988. Over the lifetime of the index, the quarterly growth rate averaged 0.59.

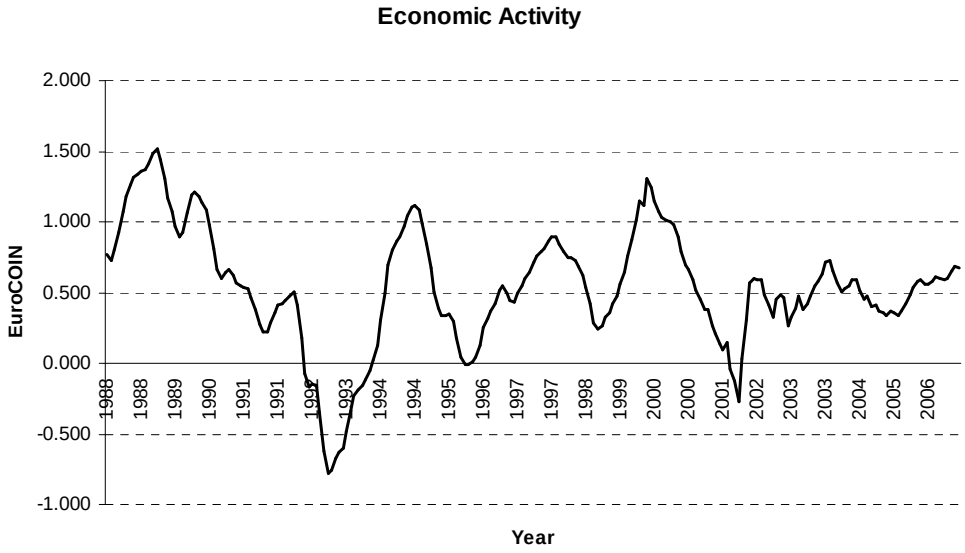

Figure 1: Economic Activity

Based on definitions in earlier research, we define that an economy is in recession, when the EuroCOIN Index is below its long run average for at least four consecutive quarters.[18] Based on this definition, we identify the following periods of recession: 1995:03 through 1996:08 (our sample period starts in 1996:01), 2000:12 through 2002:02, 2002:06 through 2003:06 and 2004:07 through 2005:08.[19]

[17] EuroCOIN is constructed using a dataset covering about 1000 monthly variables from the six largest economies of the Euro area. 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.

[18] 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 using the Stock-Watson index to measure economic activity relying on our definition of recession include Santos and Winton (2005).

[19] Four consecutive quarters of below average growth in GDP indicates long-term economic weakness which is in line with methods used for US Stock-Watson indices in earlier literature. However, we note that our analysis does not hinge on the classification "recession versus expansion" as described here. All we want to show is that economic uncertainties in general increase the cost of relationship lending. We employ further proxies using credit spreads and stock volatilities to support our empirical methodology later on.

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 (Spread) is the All-In-Drawn Spread (AIDS) reported in Dealscan. This is generally used by researchers analyzing syndicated loan spreads since AIDS is the spread above the reference rate (LIBOR) including also annualized fees shared with the participants. However, arranger fees typically paid upfront to the arranger of the syndicate are not included. X_i, Y_i and Z_i are vectors of bank, borrower and loan characteristics. The variables are discussed below.[20]

Discussion of bank characteristics

Our key explanatory variable in the empirical model is ***Weak Bank*** which is reminiscent of Hubbard et al. (2002) and defines undercapitalized banks. While Hubbard et al. use the capital-asset-ratio to identify weak banks, we use the tier 1 ratio for two reasons: Firstly, our sample period covers a period in which banks already (gradually) adapt to Basel 2 regulatory requirements. The Basel Accord establishes as ratios two aggregates of accounting capital to risk weighted assets (and certain off-balance sheet activities). Primary or tier 1 capital is required to exceed 4 percent of risk weighted assets, while total capital (tier 1 plus tier 2) has to exceed 8 percent of risk weighted assets.[21] Secondly, our dataset comprises banks from different countries with different accounting standards. To avoid biases due to different accounting regimes as good as possible, we use these standardized regulatory measures. We employ several alternative measures to define a weak bank: Our principal threshold is a primary capital ratio of 6.3 percent corresponding to the 25 percent quantile. In

[20] The Appendix also provides a comprehensive overview over the variables used in our analysis.

[21] Tier 1 capital consists of common stockholders' equity plus noncumulative perpetual preferred stock and any related surplus plus minority interest in the equity accounts of consolidated subsidiaries less goodwill and other intangibles. Tier 2 capital consists of the allowance for loan lease losses, cumulative perpetual, long-term and convertible preferred stock; perpetual debt and other hybrid debt / equity instruments; intermediate term preferred stock and term subordinated debt.

other words, a bank is undercapitalized if its primary capital ratio falls short of 6.3 percent. We further analyze the impact of undercapitalization using this threshold over each individual year. Alternative thresholds used in this study are (a) a primary capital ratio of 6.8 percent (median) and (b) whether the primary capital ratio falls in the range of 4.8 to 6.3 percent (1 percent to 25 percent quantile).[22]

We also add several control variables for bank characteristics. We control for the monitoring quality of the bank using ***Loan Loss Provisions*** which is measured as the provisions for loan losses relative to total loans. This variable is ambiguously discussed in the empirical literature. Some researchers argue that monitoring quality is inversely related to loan loss provisions. In the context of lending relationships, monitoring is an integral part of building an information monopoly. This implies a negative association with loan spreads. However, as carefully argued by Cook, Schellhorn and Spellman (2003), reputable banks might conservatively reserve for loan losses implying a positive relationship. Furthermore, we proxy for the quality of the loan portfolio using ***Non Performing Loans*** measured as the ratio of net charge-offs relative to total assets. We expect a positive relationship of non-performing loans and loan spreads since an increase in this ratio reflects ex post poor lending decisions that increases the risk of the bank portfolio. To account for liquidity risk, we further include ***Net Loans*** measured as the ratio of net loans relative to customer & short-term funding and ***Liquid Assets*** measured as cash and securities relative to customer & short-term funding in some specifications of the model. ***Low Liquid Assets*** is a dummy variable equal to one if the realization of liquid assets lies in the first quartile if its distribution. We also include ***Total Assets*** measured as the natural logarithm of the bank's total assets. (The level of) Bank asset size can capture a variety of influences. Relationship lending might be associated with high fixed costs and economies of scale as argued by Boot and Thakor (2000). Further, large banks are more established in the market, have a larger network and hence are able to syndicate larger portions of a loan more easily. Large banks might 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.

[22] Hubbard et al. (2002) use a capital- asset ratio of 5.5 percent. This is justified based on their sample including only US banks and primary capital requirements of banks of 5.5 percent imposed in 1985. Our sample includes banks from nineteen countries and we choose the thresholds according to the distribution of the tier 1 ratio in our sample. However, we do several robustness checks using the total capital ratio and capital-asset ratio. All results in this paper continue to hold (including the tests including only UK banks). These regressions are available from the author upon request.

To address other possible explanations for our results, such as differences in credit risk and loan characteristics between bank and not-bank-dependent borrowers, we include several control variables. Some of these important variables are discussed below.

Discussion of borrower characteristics

We include several borrower control variables for both public and private companies which provide us a considerable advantage over prior studies. The variables are assumed to be exogenous and control for borrower credit and business risk. Following earlier studies (e.g. Bharath, Sunder and Sunder (2006) and Harjoto, Mullineaux and Yi (2005)), we use ***Firm Size*** to control for credit risk of the borrower. These studies have shown that, ceteris paribus, loans to large borrowers carry lower spreads. Lower spreads for these borrower can e.g be attributed to economies of scale in loan origination and monitoring (Booth (1992)). Banks may give larger loans only to borrowers, if they are certain that these borrowers are less risky. Therefore, firm size and spread are supposed to be negatively related.[23] ***Leverage Ratio*** is measured as the firm's debt over total assets. It proxies for the risk of the firm's debt and is supposed to be positively related to loan spreads. We further include ***AGE (since incorporation)*** measured as the natural logarithm of the firm's age since year of incorporation as a proxy for the firm's business risk. Since older firms are supposed to be more established and lenders know the quality of the management, I expect a negative sign between firm age and loan spread. ***Interest Coverage Ratio*** is measured as EBITDA over interest expense and proxies for the borrower's ability to meet his interest repayment. Interest coverage is supposed to be negatively related to loan spread.

Discussion of loan characteristics

We also control extensively for characteristics of the loan contracts which have been shown in prior literature to be significantly related to loan spreads.

We include ***Maturity*** which is measured as the natural logarithm of the maturity of the loan. Results in prior research show that the relationship between maturity and spread is not unambiguous. Whereas Flannery (1986) suggests that loans with longer maturities are more risky, empirical work has never established this clear relationship. Coleman, Esho and Sharpe (2006) report a possible relation whereas Strahan (1999) and Dennis, Nandy and Sharpe

[23] Firm size is the natural logarithm of the firm's total assets. In unreported tests we also used operating revenues to proxy for firm risk. Exchanging both variables for one another does not have an impact on the results.

(2000) report a negative relation. However, the proxy controls for any possible impact of maturity on spread. To control for the size of the loan, we include ***Loan Size*** measured as the natural logarithm of the facility size. We further control for two specific types of loans in the sample which are extensively discussed in the literature, i.e. ***Revolver*** and ***Term Loans***. Note that we include also amortizing term loans in the revolver classification. There is empirical evidence that mainly banks invest in amortizing term loans (Term Loan A); institutional investors like Private Equity or Hedge Funds have specified investment periods not matching an amortizing loan schedule. Term loans therefore include only bullet loans (Term Loan B, C,…). These loans are therefore regularly referred to as institutional loans (which we use interchangeably in this study). It makes economic sense to treat institutional term loans separately from amortizing term loans. Institutional term loans show longer durations than amortizing term loans due to their back-loaded repayments. This effect is not captured by maturity. Coleman, Esho and Sharpe (2006) also find that pricing relationships are structurally unstable across term loans and revolvers.

We further control for collateral. Results by Rajan and Winton (1995) suggest that collateral (and also covenants) should be more present in loans to firms that require more intensive monitoring. Booth and Booth (2006) examine the relationship between borrowing costs and the presence of collateral. They find empirical evidence for the Rajan and Winton (2005) model showing that the presence of collateral increases with default risk of the borrower. Dennis, Nandy and Sharpe (2000) note that the exclusion of the information whether the loan was collateralized or not would bias the estimates. However, Dealscan misses this information for a large part of the loans included in our sample. Following Gottesman (2004), we create three indicator variables to incorporate collateralization: ***Secured*** indicates that the loan was secured and ***Unsecured*** indicates, that the loan was unsecured, respectively. ***Secured (Missing)*** is a dummy variable equal to one, if the information about collateralization is missing. Loans for which banks do not require collateral are supposed to be less risky than collateralized loans.

We also include proxies for the quantity of loans issued in the same month a loan was issued. There is anecdotal empirical evidence that comparable transactions in the market influence the loan contract terms. Gottesman (2004) reports that the demand for particular types of loan tranches (i.e. term loans or revolvers) even has an impact on the price of other loan types. Therefore, we include ***Revolver Volume*** as quantity measure for all revolving

loans and ***Term Loan Volume*** as quantity measure for all term loans issued in the same month the loan was issued.

The flexibility of pricing syndicated loans has increased by incorporating ***Performance Pricing*** features in debt contracts. As noted in Ball, Bushman and Vasvari (2006), performance pricing represent a shift from the use of less flexible covenants[24]. The latter only allow an increase in interest rates if financial covenants are breached and they remain at a higher level even if the performance of the firm improves. Performance pricing allow the flexibility to increase or decrease interest rates dependent on the performance of the firm resolving adverse selection and moral hazard problems between borrowers and banks as e.g. documented in Asquith, Beatty and Weber (2004). A pricing grid is negotiated at the beginning of the loan tying the interest rate to changes in financial ratios or credit ratings. 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 are ***Number of Facilities*** and ***Loan Purpose***[25] dummies.

We finally added some market controls, specifically the ***LIBOR*** which is the three month Euro LIBOR rate from the British Bankers' Association. Following earlier studies, the LIBOR is calculated as the average of the daily rate for the month. We furthermore control for ***Term Structure***, which is calculated as the difference between the ten year Treasury yield and the three month Treasury Bill.

Sample Characterization

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

[Table I]

[24] The use of covenants are discussed in Smith and Warner (1979), Dichev and Skinner (2002) and Chava and Roberts (2005).
[25] We explicitly control for general corporate purposes, corporate control, capital structure and project finance related purposes.

We further show 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 issued and average facility size grouped by the number of lead banks present in the syndicate. (3) We finally show correlations among switching cost proxies in the style of Hubbard, Kuttner and Palia (2002).

[Table II]

Table II characterizes loan, bank and borrower characteristics grouped by borrower asset size. It is interesting to note that 23 percent of all loans in the sample are associated with firms with asset sizes below USD 200 million[26]. Only 10 percent of all loans go to firms with more than USD 10 billion book value of assets. The results for spread and loan maturity reveal a consistent pattern over the size categories: the smallest borrowers pay the largest spreads with an average AIDS of 207 bps. Furthermore, they borrow with the longest maturities (107 months on average). The largest borrowers, however, pay the lowest spreads (60 bps on average) and borrow with the shortest maturities (44 months on average). Results for leverage ratios and interest coverage ratios do not show fully consistent patterns but they imply that small firms are much higher leveraged than large firms (almost 50 percent debt-asset ratio for the smallest firms versus 27 percent for the largest firms). Interest coverage rations are significantly higher for firms with asset sizes less than USD 1 billion (20 percent for the smallest firms versus 3 percent for the largest firms). We also provide characteristics of the tier 1 ratio and equity-capital ratio which already give some support for our argumentation. Both the tier 1 ratio and the equity-capital ratio are smallest for banks lending to the smallest borrowers and significantly larger for banks lending to larger borrowers. However, the results are not clear-cut, i.e. only the multivariate regressions can finally falsify our null hypothesis controlling for firm, bank and loan characteristics.

[Table III]

Table III shows the percentage of loans issued and average facility size grouped by the number of lead banks present in the syndicate. This table provides an intuition how concentrated the market for specific types of borrowers really is. We argue here, that league

[26] In unreported descriptive results we observe that the median asset size in the smallest bucket is less than USD 60 million and the distribution is highly left skewed.

tables indicating market shares of the lead arrangers in a given year are not an appropriate indicator for competition in the market. E.g. over our sample period, the highest market share for lead arrangers is less than five percent obtained by BZW [Barclays de Zoete Wedd] implying high competition for arranging syndicates. This interpretation suffers from 2 important fallacies: Firstly, league tables are constructed on the basis of loan volumes. Generally the total deal volume is attributed to each lead bank in the syndicate. This weighting scheme allows the larger investment banks to focus only on large deals increasing competition for those deals.[27] Secondly, albeit related to the first, they do not account for borrower characteristics associated with these deals. We cannot infer from league tables how competitive the market for specific classes of borrowers is. Syndicated loans to large public borrowers are commoditized goods with (at least nowadays) liquid secondary markets and competition is supposable larger for these firms.

As already argued, competition is a good indicator for the existence of a relationship lender's information monopoly. In panel B, we show evidence for market concentration using the number of lead banks in syndicates for private versus public firms.[28] A small number of lead banks resembles the notion of a concentrated credit market in Petersen and Rajan (1994, Petersen and Rajan (1995). 37 percent of all loans to private borrowers have only one lead bank (these loans represent 26 percent of the whole sample) and 70 percent have less than three lead banks.[29] The average loan size reported indicates that few lead banks cannot be attributed to small loan sizes: the average loan size of loans to private firms with one lead bank is USD 107 million which implies that information problems determine the structure of the syndicate consistent with our earlier paper (Bosch and Steffen (2006). These findings indicate that information monopolies are potentially important in a syndicated loan setting. However, panel B also shows that 27 percent of the loans to public firms are associated with rather concentrated syndicates, which seems to contradict our hypothesis that information monopolies are relevant only for firms with high switching costs. Again, to disentangle the different influences of borrower, bank and loan characteristics, a more detailed analysis is needed.

[Table IV]

[27] There is casual evidence that this is actually the case. One practitioner answered in an interview that the investment banks today are able to increase income keeping their revenue stable, simply by focussing on large deals which can be done with a smaller workforce.
[28] Results are similar for all other switching cost proxies used in this study.
[29] Unreported results show that 24 percent of the total private sample only has two lenders.

Table IV shows 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.

5. Multivariate Analysis

Loan Spreads for Bank and Not-Bank Dependent Borrowers

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

[Table V]

Table V shows full sample regression results. With the sample drawn from the syndicated loan market where there is, at least to some extent, concentration among lead banks, there is a clustering of observations by lead bank. As loans with the same lead bank are unlikely to satisfy the OLS assumption that loans are independent, to account for clustering by lead bank we use OLS with cluster corrected standard errors. In all models shown in table 2, the dependent variable is the AIDS. Loans where the secured status is missing are omitted. All regressions control for year, industry and lender country effects. Further borrower and loan variables are included in all regressions as described before. However, no variables carried a coefficient with unexpected signs nor do the coefficients change to a larger degree between the regression models. They remain unreported for brevity. P-values are reported in parentheses.

The weak bank effect varies between 33 bps and 40 bps dependent on the bank control variables used in the regression. In models 1 to 4, we include various control variables for bank portfolio and liquidity risk discussed earlier. Due to multicollinearity reasons, we introduce the variables step by step. The coefficient of the weak bank variable remains positive and highly significant in models 1 and 2. However, controlling only for liquidity risk, the coefficient is at beast weakly significant. Further, the coefficients for the liquidity proxies run counter the proxies for portfolio risk: the higher the bank's liquidity risk, ceteris paribus,

the lower the spread charged to the borrower. Including both portfolio and liquidity risk proxies in the regression, the liquidity effect diminishes. The coefficient for loan loss provisions is highly significant and negative as in models 1 and 2. This is consistent with the notion that good monitors (which do not have to provide for loan losses ex-post) are able to charge higher spreads. The weak bank coefficient is positive significant at the 99 percent confidence 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 found by Hubbard, Kuttner and Palia (2002) which can be traced back to the fact that a large portion of borrowers in our sample are small and private firms. They found weak bank effects in their study varying between 19 bps and 22 bps. The impact we find is also economically significant. The distribution of loan spreads in our sample shows that price buckets frequently differ by 25 bps. The weak bank effect charged to borrowers hence bumps up the spreads by one price bucket.

Consistent with prior studies, institutional term loans carry higher loan spreads, reflecting longer maturities and higher risk due to back-loaded repayments. Collateralized loans have ceteris paribus 54 bps to 63 bps higher loan spreads. This supports earlier empirical findings that loans to riskier borrowers are generally collateralized. As we expected, performance pricing features reduce the spreads required by lenders. Being able to increase loan spreads once the borrower's financial situation deteriorates also increases loan safety. Including covenants in loan contracts ceteris paribus increases loan spreads consistent with the notion that covenants are needed for borrowers which need more intensive monitoring.

[Table VI]

Table VI only reports the coefficients of the bank variables for brevity. However, the control variables are identical to 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 model 1.[30] If we use the difference between the first and 50th percent quantile as threshold, the weak bank effect still remains significant, however the magnitude changes to 20 bps.

[30] Results change after the fourth decimal point.

Model 8 introduces year effects analyzing 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 only be observed in the year 2003 and beyond. However, even though not significant, weak banks seem to charge significantly higher spreads starting in 2001. Unreported results (which include the same regression but without clustering the observations at the lender level) draw our attention even further to the fact that weak banks charged significantly lower spreads before 2001. This finding is explored further below.

However, we still need to find convincing evidence that this weak bank effect can be traced back to firms with high switching costs consistent with our theoretical framework. In Table 3 – Panel A, we therefore rerun our regressions in subsamples split according to our switching cost proxies: (1) private vs. public, (2) small vs. large, (3) young vs. old and (4) first time vs. prior relationships. 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.

[Table VII]

In order to show the weak bank effect in the most pronounced way, we report only the coefficient of the weak bank proxy in this table. Borrower and loan controls are identical to model 1. Model 1 is used as a benchmark model throughout our further 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 switching costs employed, this effect varies between 49 bps and 79 bps. For firms facing low switching costs, we do not find a significant effect. This is consistent with the result of Bosch and Steffen (2006) who find that lead arranger hold larger shares of private companies than necessary to have incentives to monitor borrowers subject to high information asymmetries and convince other lenders to participate in the syndicate. This can be explained by more profitable loans to private firms, an argument strongly supported by the results of this paper: In addition to possible larger arrangement fees, banks are able to charge private firms a

premium for their own capital constraints making these loans more profitable than loans to firms which can easily switch lenders. We have to be careful, though. The profitability of the loan then stems from an increase in monopoly power which might or might not be exploited by the lead arranger. Our results indicate two important facts: Firstly, information generated for private firms is proprietary on the lead arranger level inducing an information monopoly. Secondly, banks do not exploit their monopoly power all the time. If all banks opportunistically exploited their borrowers, we would not find a weak bank effect, which provides strong support for our theoretical framework that reputation and discretion matter in bank loan commitments.

In panel B, we further explore our earlier finding that weak bank effects occur only for loans issued after 2001. Again, only the coefficient for the weak bank proxy is shown in this table. We find the same results across all switching cost proxies: consistent with our theoretical framework, weak banks charge higher spreads for firms with high switching costs compared to firms with low switching costs. Most interestingly, however, the results seem to be driven by loans issued after 2001. The benchmark model shows that weak banks charged, ceteris paribus, 70 bps higher spreads for loans issued after 2001. Before 2001, we find no significant effect. Depending on the switching cost proxy used, the weak bank effect varies between 80 bps and 121 bps. Some comments are in order. First, we want to stress the point that the fact that we do not find a weak bank effect for loans issued before 2001 does not imply that information monopolies do not exist there. They may or may not exist depending on the quality of the borrower as perceived by outside investors. However, if banks have monopoly power, weak and strong banks either both exploit their borrowers or neither of them do. Both are potential explanations of our result. After 2001, capital constrained banks charge higher spreads. The first years of the new millennium are characterized by several high profile bankruptcies in the United States. Enron and WorldCom are two well known examples of bankruptcies wiping out about USD 34 billion in loans during this economic slowdown. In a weak economy, banks usually take some hits due to an increase in bad debt. A possible explanation for the weak bank effect we find is a shock to bank capital of at least some banks caused by these hits which ultimately leads them to charge these costs to borrowers with high costs of switching lenders. Consequently, before 2001, banks care more about their future reputation and commit themselves not to exploit their borrowers. In the next section, we identify periods of recessions and expansions to find further support for these arguments.

Accounting for the Business Cycle

This section analyzes loan spreads for bank dependent and not bank dependent borrowers through the business cycle. As described above, we define that an economy is in recession, when the EuroCOIN Index is below its long run 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 starts in 1996:01), 2000:12 through 2002:02, 2002:06 through 2003:06 and 2004:07 through 2005:08. Before 2001, at least for our sample period, the economy was (mostly) in an expansive phase. If the state of the economy explains our earlier results, we expect to find significant coefficients for the weak bank variable analyzing subsamples for loans issued in recessions and expansions, respectively.

[Table VIII]

Table VIII reports only the weak bank coefficient. All models include borrower and loan controls as reported in the benchmark model. Panel A repeats the result from Table 3 – Panel A for comparison. The benchmark model shows that, ceteris paribus, weak banks charge on average 78 bps higher spreads in recessions. In expansion phases, we do not find significant effect. The results are consistent across all switching cost proxies and the coefficients vary between 86 bps and 123 bps. All coefficients are very similar in terms of their magnitude to the ones reported in Table 3 – Panel B analyzing loans issued before and after 2001, respectively. With regard to the distribution of the AIDS, the results are statistically and economically significant.

These findings give strong support to our arguments in the last section. Recessions amplify already existing uncertainties regarding the quality of a borrower increasing the monopoly power of relationship banks. Even more important, a rise in bad debts and company failures is troubling for some banks causing them to exploit informational captured borrowers in order to preserve their own financial health. Strong banks, however, do not exploit their information monopoly. They commit to their borrower to build closer ties and to increase their future expected income. In expansion phases, there is no significant evidence for a weak bank effect. Information monopolies, if they exist, are not exploited by relationship banks. These results are consistent with our theoretical framework.

Accounting for Lender Country Effects

Our sample includes loans extended by banks from countries other than the UK. The analysis might be subject to criticism since bank borrower relationships are relevant for small private firms with high switching costs and close ties between banks and borrowers are supposable less relevant for banks not domiciled in the UK. We rerun the models from Table 4 excluding all non-UK banks. This reduces the sample size to 522 loans extended to 203 borrowers by 38 UK domiciled banks.

[Table IX]

Table IX shows regression results of the impact of banks' capital constraints on the loan spread including only UK domiciled banks. All regressions are heteroscedasticity robust clustered at the lender level and we report only the weak bank coefficient for brevity. All borrower, loan and market controls are identical to model 1 in Table V. The benchmark model shows that weak banks charge on average 48 bps higher loan spreads than their well capitalized peers. This effect is driven by loans issued in recessions with an average increase of loan spreads by 113 bps if the loan is extended by a weak bank. All of our earlier results hold consistently across all switching cost proxies. The impact of the weak bank effect is higher compared to the results including non UK banks implying that relationships are more relevant for loans issued by UK banks. This is consistent with the finding that most of the firms in this sample are less than seven years old. In other words, companies with higher switching costs borrow from UK domiciled relationship banks and information monopolies are larger for these banks.

6. Robustness Checks & Discussion

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

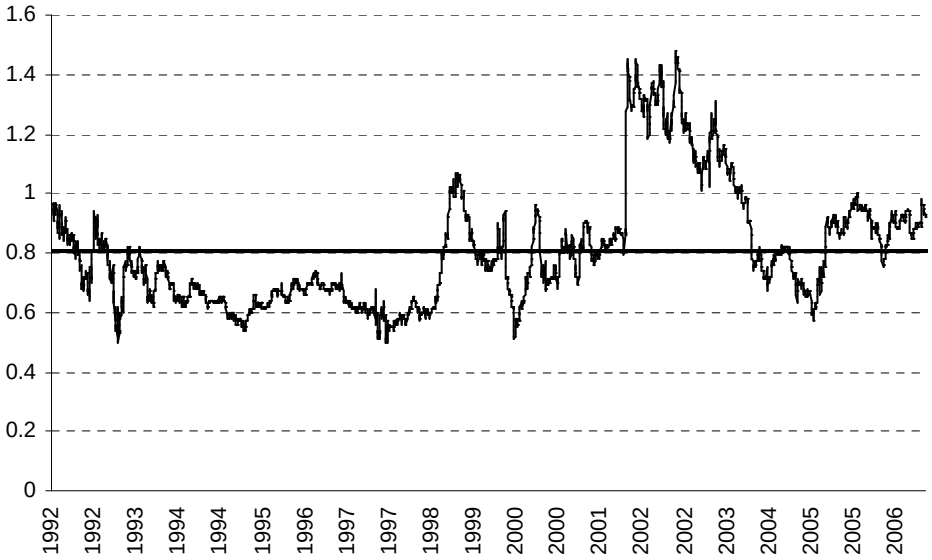

Figure 3: Credit Spread

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

Figure 3 characterizes the credit spread over the time period 1992 and 2006. The solid line represents the average credit spread over this period. If the spread is above its average, credit spreads are wider implying higher uncertainty regarding the viability of low rated companies. We observe some remarkable spikes in the credit spread curve. In 1992, we still notice repercussions from the Gulf war in 1991. In 1998, spreads significantly widened again as a result of the Asia crisis and the subsequent default of LTCM. In the early 2000s, the economy suffered further hits by 9/11 and the failures of Enron and Worldcom increasing credit spreads to the highest level for at least a decade.

We control for these effects introducing the variable ***Credit Spread*** as defined above and rerun our regression[31]. The results are shown in Table X.

[Table X]

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

Model 1 repeats the model already shown in Table V. Model 9 includes credit spread as additional variable. An increase in credit spreads by one percentage point increases loan spreads by 58 bps. The weak bank proxy remains significant in almost unchanged magnitude. In model 10, we interact the weak bank and credit spread variables.

The results support our theoretical framework. Loan spreads rise on average by 43 bps if the credit spread increases by one percent. Weak banks charge higher spreads in times of higher uncertainties exploiting an information monopoly. Thus, on average, the widening of credit spreads by one percent increases the interest rates on loans by 55 bps conditional on the 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 showing that the weak bank effect is primarily driven by external events which increases the monopoly power of relationship lenders and, more importantly, adversely hits some banks' capital which induces them to exploit borrowers with high switching costs.

Panel B shows further robustness tests introducing qualitative proxies for bank risk. Prior research has shown that commercial banks are less risky than investment banks due to the trading activities of the latter. Model 11 introduces Commercial Bank as dummy variable equal to one, if the loan was extended by a commercial bank. All other control variables remain unchanged. We find robust results for the weak bank effect with an increase in loan spreads by 43 bps. Commercial banks charge on average 27 bps lower spreads. Model 12 excludes all other bank variables but includes commercial bank and Investment Bank as controls for bank risk. Consistent with earlier literature, commercial banks charge on average 30 bps lower spreads. Investment banks, however, charge on average 238 bps higher spreads. The weak bank coefficient is still highly significant. All robustness checks give strong support to 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 might bias our results: opaque borrowers might choose weak lenders because they are denied credit from strong banks. If that is the case, weak banks in our sample have on average riskier portfolios 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 rerun our tests using firm-bank fixed effect regressions. However, the main results remain qualitatively unchanged.[32]

7. Conclusion

In this paper, we analyzed the possibility of banks to charge idiosyncratic costs to borrowers comparing firms with high and low switching costs. We find strongly supportive results for the existence of information monopolies that allow 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) which increase uncertainties regarding the viability of borrowers with high switching costs amplifying 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 informational captured firms than their well capitalized peers. Those (strong) banks keep their commitment with their clients probably to strengthen their relationships in expectation of higher future income. Our results are both statistically and economically significant and consistent with theoretical models as per Greenbaum, Kanatas and Venezia (1989), Rajan (1992) and Boot, Greenbaum and Thakor (1993). Further analyses and robustness checks support the notion that bank effects have an impact on syndicated loan spreads.

There are several possibilities to extend this analysis further. For example, it might be interesting to analyze investment behaviour of private firms which borrow from weak banks following earlier literature on the bank lending channel. It might be also interesting to analyze the value of bank-borrower relationships in a syndicated loan setting in a more direct way applying a panel data approach looking at the development of the relationship over time. This way, we might be able to directly test predictions of theoretical models about how interest rates develop, if the bank-borrower relationship evolves. Based on prior research, syndicate structures are sensitive to borrower opaqueness and credit risk. Since periods of recessions increase the overall risk in the economy, it is interesting to investigate the change in the structure of loan syndicates across the business cycle as well, something we are currently pursuing.

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

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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*********	Dummy variable for each country, the parent lender is domiciled in.

********* 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††††††††	
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 Prior 2001	Dummy variable equal to 1 if the loan is issued before 2001
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

†††††††† 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, originated 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, originated 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).

	Loan Characteristics		Borrower Characteristics		Bank Characteristics	
Firm Size ($BN)	**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
PERCENTAGE OF LOANS ISSUED AND AVERAGE LOAN SIZE
ACCORDING TO NUMBER OF LEAD BANKS

This table presents descriptive statistics of syndicate structures (number of lead banks) for loans issued to private vis-à-vis public firms. Only completed dollar denominated loans are considered, originated 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. We include only loans, for which bank and borrower characteristics are available (N=988).

		Number of Lead Banks			
		1	**< 3**	**< 5**	**< 10**
Private	**% of Loans**	37%	70%	82%	91%
	Ø Loan Size ($MM)	107	127	150	160
Public	**% of Loans**	27%	53%	63%	77%
	Ø Loan Size ($MM)	254	302	356	417

TABLE IV
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 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.

	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 V
LOAN SPREADS AND BANK CHARACTERISTICS

The dependent variable is the All-In-Spread reported in Dealscan. All regressions are clustered at the lender parent level. Models 1 and 2 only include proxies for bank portfolio risk; models 3 and 4 introduce 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 VI
LOAN SPREADS AND BANK CHARACTERISTICS

The dependent variable is the All-In-Spread reported in Dealscan. All regressions are clustered at the lender parent level. The first column repeats the 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. Model 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 specification 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 VII
LOAN SPREADS FOR BANK DEPENDENT AND NOT-BANK DEPENDENT BORROWERS

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 (Tier 1-Ratio < 6.3% (1st quartile)) is shown. 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 full sample regression results. Panel B shows subsamples for loans issued before and after 2001.

	Panel A	**Panel B**	
	Full Sample	**Loan Issued Prior 2001**	**Loan Issued After 2001**
Benchmark Model (Model 1)	40.237***	12.115	69.853***
	(.003)	(.475)	(.001)
Switching Cost Proxies			
Private vs. Public			
Private	79.343***	59.115	98.203***
	(.000)	(.144)	(.002)
Public	-9.049	-10.664	44.558
	(.512)	(.561)	(.139)
Small vs. Large			
Small	76.569***	-4.617	113.951**
	(.003)	(.89)	(.031)
Large	-7.956	-6.697	7.34
	(.643)	(.739)	(.809)
Young vs. Old			
Young	48.931***	18.442	79.929***
	(.002)	(.378)	(.001)
Old	23.514	9.512	-5.772
	(.191)	(.591)	(.879)
Pior Lending Relationships vs. First-Time Loan			
First-Time Loan	60.447***	35.104	120.798***
	(.001)	(.155)	(.000)
Prior Lending Relationship	5.786	-5.115	1.983
	(.796)	(.864)	(.955)

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

TABLE VIII
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 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 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 IX
LOANS SPREADS FOR BANK DEPENDENT AND NOT-BANK DEPENDENT BORROWERS AND ***ONLY*** UK LENDERS

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 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 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)	48.16***	11.153	112.834***
	(.029)	(.726)	(.000)
Switching Cost Proxies			
Private vs. Public			
Private	96.446**	0.785	131.949***
	(.011)	(.992)	(.000)
Public	1.969	-17.588	90.697*
	(.942)	0..382	(.077)
Small vs. Large			
Small	91.205**	64.533	167.462***
	(.024)	(.583)	(.000)
Large	-8.568	-75.707*	99.438*
	(.792)	(.097)	(.076)
Young vs. Old			
Young	110.735***	28.466	106.835***
	(.003)	(.754)	(.000)
Old	19.375	34.329	73.897
	(.465)	(.286)	(.135)
Pior Lending Relationships vs. First-Time Loan			
First-Time Loan	63.204***	-9.63	120.69***
	(.007)	(.802)	(.001)
Prior Lending Relationship	64.055*	51.949	79.995*
	(.071)	(.465)	(.088)

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

TABLE X
ACCOUNTING FOR ALTERNATIVE MACROECONOMIC AND BANK RISK PROXIES

The dependent variable is the All-In-Spread reported in Dealscan. All regressions are clustered at the lender parent level. Panel A shows the results employing credit spreads as alternative proxy for external shocks. Panel B introduces alternative (qualitative) variables for bank risk. All 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