

**“An Unfair Advantage”?**  
**Combining Banking with Private Equity Investing**\*

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Lily Fang  
INSEAD

Victoria Ivashina  
Harvard University

Josh Lerner  
Harvard University and NBER

We explore the phenomenon and economics of private equity investments by bank-affiliated groups. Between 1983 and 2009, bank-affiliated private equity groups accounted for over a quarter of all private equity investments. Banks’ involvement increases during peaks of the private equity cycles. In particular, deals done by bank-affiliated groups are financed at significantly better terms than other deals when the parent bank is part of the lending syndicate, especially during market peaks. Investments made by bank-affiliated groups have slightly worse outcomes than non-affiliated investments, despite the targets having superior performance prior to investments. Investments during market peaks by commercial banks have significantly higher rates of bankruptcy. The involvement of a bank’s private equity subsidiary in a deal significantly increases the odds of the parent bank being selected as future lenders, advisors, and underwriters. Collectively, these findings suggest that there are risks in combining banking and private equity investing.

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*[Deposit insurance was] not created to bestow banks operating hedge funds or private equity funds with an unfair advantage. When banks benefit from the safety net that taxpayers provide—which includes lower-cost capital—it is not appropriate for them to turn around and use that cheap money to trade for profit. And that is especially true when this kind of trading often puts banks in direct conflict with their customers' interests. The fact is, these kinds of trading operations can create enormous and costly risks, endangering the entire bank if things go wrong. We simply cannot accept a system in which hedge funds or private equity firms inside banks can place huge, risky bets that are subsidized by taxpayers and that could pose a conflict of interest.*

-- President Barack Obama, January 21, 2010<sup>1</sup>

The proposed Volcker rule, which would sharply limit the ability of banks to engage in proprietary investing and trading activities, has shown a spotlight on these financial institutions' private equity investments. As the above quote suggests, the rule is motivated by the perception that these investment pose substantial risks, which are inconsistent with the presence of the implicit public subsidies associated with deposit insurance.

This issue is not just of practical interest, but is also of theoretical relevance. An extensive literature has examined the way in which other rules governing bank behavior, especially the Glass-Steagall Act that was passed in the aftermath of the Great Depression and separated investment and commercial banking, affected potential conflicts-of-interest and information processing by banks. More generally, a substantial literature on internal capital markets has mapped out the trade-offs associated with the bundling of financing functions within a single organization. But despite the intense interest in these topics, we know remarkably little about the role of banks in buyout markets.

This paper seeks to address this gap, by taking a comprehensive look at the role of banks in the private equity industry. We examine 7,902 unique private equity transactions between

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<sup>1</sup> <http://www.whitehouse.gov/the-press-office/remarks-president-financial-reform> (accessed March 6, 2010).

1978 and 2009, looking in depth at the nature of the private equity investors, the structure of the investments, and the performance of the firms.

The following findings emerge from our analysis:

- The share of banks in the private equity market is substantial. Over the period between 1983 and 2009, over one-quarter of all private equity investments involved bank-affiliated private equity groups.
- The share of transactions affiliated with banks is pro-cyclical, peaking at times of big capital inflows into the private equity market. Transactions done at the top of the market are most likely to experience subsequent distress, and this pattern is particularly true for transactions involving banks' private equity groups.
- Transactions that involved bank-affiliated groups were financed at significantly better terms than other deals when the parent bank was in the lending syndicate. These patterns are primarily driven by deals at the peaks of the private equity cycles and in the period after the repeal of the Glass-Steagall Act. The pattern appears to be systemic, and not driven by the behavior of a few aggressively expanding banks.
- Participation in private equity transactions appears to provide significant competitive advantages to the banks. If a bank or its affiliate is an investor in a private equity transaction, the bank is considerably more likely to serve as a future lender and underwriter to the firm.
- Prior to the transaction, targets of bank-affiliated investments have significantly better operating performance than other buyout targets, though their size and other features are similar. Exit results are, however, mixed, with bank-affiliated investments having slightly worse outcomes in general.

In the final section, we discuss the implications of these findings. The results are consistent with many of the worries about these transactions articulated by policymakers. These investments do seem to exacerbate the amplitude of waves in the private equity market, leading to more transactions at precisely the times when the private (Kaplan and Stein, 1993; Kaplan and Schoar, 2005) and social (see, for instance, the evidence about productivity in Davis, et al., 2009) returns are likely to be the lowest. Moreover, investments involving both affiliated and non-affiliated firms appear particularly vulnerable to downturns. Some information-related synergies, however, are captured internally by the banks.

These findings are related to several broader strands in the literature. First, there is a large literature that investigates synergies between concurrent lending and underwriting of public securities. As noted above, much of the debate on synergies in universal banking has been focused on understanding the implications of the Glass-Steagall Act. The act prohibited national banks from engaging in any corporate securities businesses directly or through subsidiaries. In 1987, the provisions were relaxed, granting some of bank holding companies permission to engage in underwriting and dealing in securities through a special subsidiary (Section 20 subsidiary). The division between commercial and investment banking was finally repealed by the Gramm-Leach-Bliley Act, also known as the Financial Services Modernization Act of 1999.

The rationale behind the Glass-Steagall Act was twofold. First, combining lending and underwriting could lead to conflicts of interests, as banks might have incentives to underwrite poor quality securities to pay off their own loans. Second, bank investments in securities markets could increase the riskiness of their portfolio and lead to a general increase in the systemic risk of the financial system. The previous literature primarily has focused on the conflict-of-interests argument. Consistent with information production role of lending banks and reusability of

private information collected in lending relationship, the upside of combining lending and underwriting within the same institution is that it reduces the underwriting cost and allows for the certification role of banks. Kroszner and Rajan (1994) and Puri (1996) compare securities underwritten by universal banks (which combined commercial and investment banking) with those underwritten by investment banks only during the period preceding the Glass-Steagall Act. The findings indicate that lending banks played an important certification role by conveying information acquired through their loan-making activities to uninformed investors, and tended to focus on higher-quality firms. Drucker and Puri (2005), as well as Yasuda (2005), analyze a more recent sample and show that there are informational synergies between lending and underwriting that accrue to the borrowers. Such benefits are more important for smaller and more opaque borrowers. Gompers and Lerner (1999) suggest that modern investment banks effectively certified initial public offerings (IPOs) that their venture capital subsidiaries had invested in, and that these offerings outperform the market. A more recent study by Ivashina, et al. (2009) is also consistent with information generation by investment banks. The study shows the information collected by the banks can be reused to facilitate transactions between their clients. In particular, banks appear to play an important role as match-makers in the corporate merger and acquisition market.

More broadly, our paper relates to the internal capital market literature. Stein (1997), for example, sees organizational diversification across activities (in this context, investment banks that can engage in either underwriting or investing) as an important element of efficient capital allocation. When opportunities are poor in one industry, he argues, managers can maintain their overall capital budget (which they value in and of itself) while still making good investments in their other industries. By contrast, managers of narrowly focused firms with poor investment

opportunities have no place else to invest and, in an effort to maintain their capital budgets, may end up investing in negative net present value projects.

One of the critical elements of the Stein model is that the CEO—who has no vested interest in making investments in any particular sector—gets to decide where capital is allocated. But these capital allocation decision rights are not as clear cut in investment banks, where the allocation of resources may be intensely political. Thus, the advantage of a generalist form of organization may not be as large as suggested by Stein. This counter-argument is in line with the view that diversified firms have a difficult time redeploying capital into sectors with better investment opportunities, as suggested by Rajan, Servaes, and Zingales (2000), Scharfstein (1998), and Scharfstein and Stein (2000). The results here seem consistent with the elements of both optimistic and pessimistic interpretations of the workings of internal capital markets.

The plan of this paper is as follows. In Section I, we discuss the construction of the sample and descriptive statistics. Our empirical analysis is presented in Section II. Section III concludes the paper.

## **I. Data and descriptive statistics**

Our focus is on U.S. private equity transactions. We use a broad definition of private equity transactions and include leveraged buyouts (LBOs) and growth investments by private equity firms (later in the paper, we consider these investments separately). We exclude venture capital and distressed investments from our sample. The data for this study were collected from two main sources: Standard and Poor's Capital IQ (CIQ) transaction database and Reuters' LPC DealScan loan database (DealScan).

Since 1999, CIQ has been specialized in tracking private equity deals on a world-wide basis. Through extensive research, it attempts to “back fill” information about investments prior to this period. Most data services tracking private equity investments were not established until the late 1990s. The most comprehensive exception, SDC VentureXpert, was primarily focused on capturing venture capital investments (rather than private equity transactions) until the mid-1990s. Strömberg (2008) compares the CIQ LBO data during the 1980s with the samples from older LBO studies using data from other sources and estimates the CIQ coverage to be somewhere between 70% and 85% for this period. The CIQ sample is likely to be biased towards deals for larger, surviving, and more established private equity firms before the mid-1990s.

DealScan primarily covers syndicated loans and is available to us for the period from 1988 through the end of 2008. This data contains detailed information as of the loan origination date. In particular, we use the borrower’s name, lenders’ names, financial sponsor name, loan type, loan size, loan maturity and loan spread paid over London Inter Bank Offered Rate (LIBOR). We consolidate information at the loan level. We assume that loan facilities within the same seniority class have the same spread. The DealScan coverage of private equity transactions is significantly smaller than CIQ sample. Overall, our sample includes loans backing 2,105 unique U.S. private equity transactions between 1993 and 2005 with spread information. The deals might be missing in DealScan if its financing did not include a loan (as is the case in many growth equity investments) or if the loan was not syndicated. For a given transaction, we look at the first-lien facility spread (i.e., the spread on the most senior tranche, which is also typically the largest tranche). We select the first chronological loan for an LBO firm and borrower, excluding any follow-on transactions or refinancings. Thus, our final sample includes only one observation (loan) per transaction.

Sometimes, especially in the later years of the sample, a transaction is sponsored by a syndicate of investment firms. We categorize it as a bank deal if at least one of the financial sponsors is bank-affiliated. If the investment consortium consists of both a bank-affiliated group and a non-bank group, we flag it with a separate indicator to identify such deals. We also differentiate between banks with commercial and investment banking origins.<sup>2</sup> Overall, our sample contains fourteen bank-affiliated groups, six of which – Goldman Sachs Capital Partners, Lehman Brothers Merchant Banking, Merrill Lynch Capital Partners, Morgan Stanley Private Equity, DLJ Merchant Banking, and Wasserstein & Co. – are investment bank affiliates. We also identified cases where private equity groups spun out of banks.

Table I shows the distribution of private equity transactions over time based on the larger CIQ sample. This sample reflects the most complete picture of the overall investment portfolios of the different private equity groups. Between 1978 and 2009, there were a total of 7,902 unique transactions in our sample,<sup>3</sup> 26% of which involved bank-affiliated private equity groups.<sup>4</sup> Panel A of Figure 1 shows, however, that this fraction fluctuates widely over time. Notably, it is related to the volume of LBO transactions. For example, the fraction reached a peak of about 25% during the buyout wave of the late 1980s (between 1985 and 1989). There is a dramatic decline

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<sup>2</sup> Although historically commercial banks had lesser involvement in dealing with public securities, the main difference between commercial and investment banks in our sample is the regulatory framework under which they operate. In particular, between 2004 and fall of 2008, four of the large investment banks in our sample—Goldman Sachs, Lehman Brothers, Merrill Lynch, and Morgan Stanley—were overseen by the Securities and Exchange Commission (SEC), while large bank holding companies were overseen by the Federal Reserve System. In principal, the regulatory framework imposed on commercial banks was associated with higher capital requirements; in practice, however, the higher cost of funding imposed by tighter regulatory standards could be overcome through loan syndication and risk hedging strategies.

<sup>3</sup> We believe this figure understates the true number of private equity investments, due to sample omissions. In this table and subsequent analysis, we include only deals where the private equity groups are new investors in the targets. When we infer the complete portfolio from all deals where private equity groups are either current or past investors, we find nearly 20,000 deals in the same sample period. However, the qualitative result that affiliated groups account for roughly a quarter of the total investing activity is unchanged in the larger sample.

<sup>4</sup> In this table, when multiple sponsors are involved in a deal, we count it only once, except when at least one sponsor is an affiliated type and at least one is a non-affiliated type. In such situations, the deal is counted once in each group. Thus, this table includes mixed deals. Excluding mixed deals give similar patterns, with the affiliated sample accounting for 22% of the total.

in bank-affiliated private equity investments in the 1990s, when the leveraged buyout market was relatively quiet after the junk bond market collapse and the recession in the beginning of that decade. During this period, affiliated groups accounted for a steady 10% of the total deals. Their activities rose significantly during the market bull run of the late 1990s. After a temporary drop in the early 2000s, these activities reached an all-time high of over 30% of total deals in the recent credit boom, before falling off sharply with the onset of the credit crunch of 2008.

*[TABLE I]*

Since the overall private equity activity has been well documented to be highly cyclical, the dramatic rises and falls of affiliated-groups activities against such a base is particularly remarkable. It suggests that affiliated groups enter the market in an opportunistic fashion. This may further suggest that there is somewhat a speculative element in banks' forays into private equity: if activities are particularly high during times of high economic-wide leverage, this may lead to the concern that such activities create undue systemic risks. However, such concerns must be assessed through empirical analysis.

As mentioned earlier, often—especially during the recent credit bubble—multiple sponsors are involved in the same deal. An investment syndicate can contain both affiliated groups and unaffiliated groups. Table I also tabulates the frequency of these “mixed” deals. Overall, mixed deals account for 15% of the sample, but the fraction is much higher for the affiliated sample (28%) than for the unaffiliated sample (10%). Panel B of Figure 1 plots the fraction of mixed deals in the overall sample over time, and again reveals significant cyclicity: mixed deals were relatively rare in the 1990s, but surged to 25% of the total in 2000 before plateauing around 15%. Figure 2 presents the same analysis using dollar weighting, and reveals similar patterns.

*[FIGURES 1 & 2]*

Table II ranks affiliated and unaffiliated groups by activity measured by both deal count (Panel A) and total dollar amount (Panel B). All 14 affiliated groups are shown, whereas only the top 15 groups are shown for the unaffiliated sample. Activities in the affiliated sample are highly concentrated: Goldman Sachs Capital Partners alone accounts for 29% of total deals and 36% of total dollar amount invested among affiliated groups. The top five groups—Goldman Sachs, JP Morgan Capital, Citigroup Private Equity, and Lehman Brothers Merchant Banking—account for 76% of total deals and over 80% of total dollar amount. This level of concentration is much higher than in the non-affiliated sample. The top group by deal count (Oak Investments) carries out 12% of total deals, and the top group by dollar amount (Kohlberg Kravis & Roberts) accounts for 15% of the total dollar volume. Top five groups in the non-affiliated sample account for roughly one-third of total deals and over half of dollars invested.

*[TABLE II]*

Table III tabulates the industry distribution of the private equity investments. Whether measured by deal count (Panel A), or by dollar amount (Panel B), consumer staples, information technology, and healthcare appear to attract private equity interest. While financials and utilities account for only about 7% of deals each, they respectively account for about 15% and 20% of dollar amount invested. This reflects the fact that financials and utility deals are generally large in size. Overall, the sector distribution does not appear very different between the affiliated sample and the non-affiliated sample. While affiliated groups statistically have less activity in the consumer staples sector, this sector accounts for a small fraction of overall investments, and thus the economic significance here is not large. Interestingly, there is some evidence that affiliated groups are more active in the financial sector. This could be due to affiliated groups, being

subsidiaries of large investment banks, have naturally better understanding and information of the financial sector. While the statistical significance for this is borderline (the difference is only significant at the 8% confidence level), perhaps due to the small sample size.

[TABLE III]

## II. Empirical Analysis

### A. Financing Terms

We start by analyzing financing terms for our sample deals. We are able to match 2,105 of our deals with financing information from the DealScan database. The sample is smaller than Capital IQ sample partly because not all of the transactions in our sample are backed by large—and therefore syndicated—leveraged loans. DealScan mainly covers syndicated loans; the data on private transactions is collected from Reuters contributors and is primarily used as a benchmark for loan terms and for construction of league tables. Thus, if the loan is not syndicated, it is unlikely that it is in our sample. Overall, the sample is biased toward large and leveraged transactions. However, there is no reason to believe that DealScan data coverage has cross-sectional bias. Our final sample is comparable to other studies that relied on the DealScan data for the analysis (Axelson, et al., 2008; Ivashina and Kovner, 2008).

Table IV reports regression results of main financing terms at the time of loan origination: total loan amount, maturity, and total spread paid over LIBOR. The main explanatory variables include an indicator for bank-affiliated deal, an indicator for the fact that a deal is of a mixed type (i.e., deal backed by a syndicate of private equity firms, where at least one of the investors is a bank-affiliated firm and at least one other investor is a stand-alone firm), and the credit rating of the deal. In addition, one variable of key interest is an indicator that the parent bank of the affiliated private equity group is in the lending syndicate. The variable *Parent*

*bank in syndicate* equals 1 if the private equity sponsor is affiliated with a bank in the lending syndicate and 0 otherwise. We only include banks with large commitments (i.e., banks receiving syndicate roles other than “participant”). The results control for industry sector, as reported by CIQ, and year fixed effects.

[TABLE IV]

Coefficients on the bank-affiliated indicator suggest that bank-affiliated deals are generally associated with lower lending amounts, shorter maturity, and higher yield spreads. However, the situation is dramatically different when the parent bank of the affiliated private equity group is in the lending syndicate. When this is the case, deals done by affiliated private groups enjoy a significantly larger borrowing amount, a longer maturity, and a lower spread. The *Parent bank in syndicate* dummy is highly statistically significant for all three regressions. The economic magnitude of the results is also worth noting. Panel A of Table IV indicates that having the parent bank in the lending syndicate increases loan amount by \$801 million, a nearly one-third increase over the average loan size of \$612 million in our sample. The parent bank’s presence in the lending syndicate increases the maturity of the loan by more than 4 years, two-thirds of the average maturity of 6 years. Finally, the same presence reduces loan spreads by 47 basis points, 15% of the average spread of 317 basis points in the sample. Thus, a parent bank’s involvement in the lending syndicate results in statistically and economically large improvements in the financing terms, even after controlling for standard credit quality measures.

Better financing terms could be driven by two different explanations with opposite policy implications. On the one hand, the better terms could indicate the superior private information that the parent bank has about the target firm: Willingness to be present in the lending syndicate could be a vote of confidence and have a certification effect. This would indicate an information

advantage of combining different types of activities. On the other hand, the better terms could indicate balance sheet expansion by the banks, that is, their ability to take advantage of cheap capital. Which explanation is more plausible is at the heart of the policy debate.

In Panels B, C and D of Table IV, we examine the robustness of the results. First, we might hypothesize that the effects would be stronger for traditional buyout investments than growth equity ones, particularly if the balance sheet expansion hypothesis holds. Growth equity deals are less likely to either need or to be able to support large amounts of leverage. We repeat the analysis in Panel B, restricting the sample to buyout investments. The results in the loan amount and loan spread regressions are generally stronger: the presence of the parent bank in the syndicate appears to lead to larger loans with narrower spread. LBO deals done by bank-affiliated firms that have a parent bank in the lending syndicate, on average, have \$1.7 billion larger loan financing and 87 basis points lower spread. The results regarding loan maturity, however, are weaker. Notice that overall there are no differences in financing terms between LBOs done by bank-affiliated and stand-alone private equity firms.

In Panels C and D we examine the period before and after the enactment of the Graham-Leach-Bliley Act. If the ability to engage in universal banking has greatly facilitated banks' abilities to exploit their advantages (which both the information advantage and the balance sheet expansion hypotheses might suggest), the effects of having a parent bank of a private equity investor in the syndicate may be much more modest during this earlier period. Indeed, the results in Panel C suggest that these relationships were much weaker during the pre-repeal period.

These results are very robust. In order to distinguish potentially different roles of investment banks and commercial banks, we created a dummy for cases where the bank has a background in commercial banking. Either including this dummy or dropping the commercial

bank sample entirely leads to insignificant changes to the regression results. Another concern is whether this is just a “Goldman Sachs” effect, because this group alone accounts 30% of the affiliated groups’ activity. When we exclude Goldman Sachs from the sample, the results are very similar to the baseline: the improvements on the loan size, maturity, and spreads are 828 million, 4.52 years, and 44 basis points, respectively.

To assess the informational advantage and balance sheet expansion hypotheses, we analyze whether the superior financing terms are concentrated only in peak years of the private equity cycle. If the primary driver of the superior financing terms is access to cheap capital, we should see the effect limited to market peaks. The information advantage argument would have a harder time explaining such a time-varying pattern.

In Table V, we re-estimate the financing terms regressions by adding interaction terms between the key explanatory variables and an indicator variable for peak years of the private equity cycle. The loan data is available for the 1993-2009 period. Thus, there are two peak periods in our sample: the technology-bubble period between 1998 and 2000, and the credit bubble of 2005 to 2007. The *Peak year* dummy is equal to 1 for these years and 0 otherwise.

[TABLE V]

The results in Table V show that the ability to borrow more at longer maturities as a result of a parent bank’s involvement in the lending syndicate stems largely from the peak periods. For both the loan amount and maturity regressions, after introducing the interaction term between *Parent bank in syndicate* and *Peak year*, the explanatory power of *Parent bank in syndicate* disappears completely and the effect entirely loads on the interaction term.

Interestingly, in the loan spread regression, we see a different pattern. Here, having a parent bank

in the lending syndicate still has a significantly negative effect, but the incremental effect for the peak years is not statistically different from zero.

These results suggest that, while the parent bank's presence in the lending syndicate leads to significantly better financing terms, this effect is concentrated almost entirely at the peaks of the market. Such a time-varying pattern is consistent with the view that bank-affiliated deals enjoy a financing advantage at the peak of the market (the balance sheet expansion hypothesis); during this period, the ability to access large amounts of capital facilitates strategic lending behavior in a manner not seen at other times. It is more difficult to reconcile these cyclical patterns with the information-advantage view, unless the pattern is driven by credit constraints limiting such preferential lending by banks during non-peak periods. Thus, our results can only be seen as suggestive.

Interestingly, our analyses also suggest that the advantages that affiliated groups enjoy from balance sheet expansion at market peaks primarily take the form of larger borrowing amounts and longer maturities, instead of a lower loan spread. Bank-affiliated funds involvement in the lending syndicate has a time-invariant effect of reducing loan spreads, which indicate that this pricing parameter may be capturing some information-related advantages.<sup>5</sup>

Finally, we check whether the recent credit bubble of 2005-2007 plays a particularly important role in driving these results. During the most recent credit bubble, parent banks could more easily shed their loan exposures than ever before, thanks to the large inflow of institutional capital into the securitized loan market (Ivashina and Sun, 2008). In Panel B of Table V, the analysis is focused on 2005-2007 period. The results in this panel are very similar to the peaks

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<sup>5</sup> Consistent with the hypothesis that banks expand their balance sheet through their private equity arms when financing terms are lax, we observe that bank investments become more concentrated in the "hot" industries in the peak years. However, the concentration is smaller for bank affiliated firms (a 4% increase) as compared to non-affiliated firms (13%).

over the entire period, indicating that much of the effect comes from this recent period. This result lends further support to the view that the superior financing terms come from preferential access to cheap capital, rather than an information advantage.

### *B. Performance*

Next we examine exit patterns of the two samples. We employ Per Strömberg's data on exits, whose construction is described in Strömberg (2008). We supplement that data with hand-collected information on more recent IPOs, bankruptcies, and mergers and acquisitions (M&A) transactions through January 2010 from CIQ and SDC Platinum.

Table VI compares the outcomes of bank-affiliated deals with the non-bank sample. Over the entire sample period, about 13% of deals eventually have an IPO exit, and about 73% have a trade-sale exit. The bank sample has a higher ratio of bankruptcies (7.7%) relative to non-bank sample's 5.7%. This difference is significant at the 10% level. Also, a smaller fraction of bank deals (63%) have what are typically profitable exit (exits where the exit-multiple exceeds 1) than the non-bank sample (74%).<sup>6</sup> Thus exits seem overall slightly less successful in the bank sample than in the control sample.

#### *[TABLE VI]*

Interestingly, investment performance between the two samples differs more for peak periods than in non-peak periods. (Here, peak periods are the late 1980s buyout wave between 1985 and 1988, the tech-bubble period between 1998 and 2000, and the credit bubble of 2005 to 2007. The *Peak years* dummy is computed using the year of the transaction and not the year of the exit.) First, during peak years, bank deals have significantly higher odds of an IPO than non-

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<sup>6</sup> We compute exit multiple as exit value divided by original transaction value. For trade-sale exits, the exit value is taken as the transaction value of the sale. For bankruptcies, exit value is taken as the assets of the firm at bankruptcy filing. For IPOs, exit value is the total IPO proceeds. This calculation ignores dividends and recaps that could generate additional returns to the private equity investor. Exit value information is obtained from Stromberg (2008).

bank deals (13.5% vs. 9%). Second, investments made by non-bank-affiliated funds during peaks have significantly lower odds of an IPO than investments in non-peak years (9% vs. 15%). This under-performance of peak-period investments is consistent with prior literature, having first been documented by Kaplan and Stein (1993). The probability of a bank-affiliated portfolio company going public during peak periods is also lower, but the drop-off is less dramatic. Third, during peak years, bank deals have significantly lower incidences of trade sale exits than non-bank deals. During non-peak years, the two samples look more similar, but the bank sample still has higher probability of bankruptcy. Overall, these patterns suggest that bank deals have slightly worse exits than non-bank deals.

One natural follow-on question is whether bank deals have poorer ex post outcomes because the firms display ex ante poorer characteristics. The information-advantage perspective would suggest that, if anything, bank-deals should involve higher-quality targets. Table VII compares various transaction and target-firm characteristics of bank deals and non-bank deals. Transaction characteristics are generally similar between the two samples, with the exception that the implied enterprise value to EBITDA ratio is lower in the bank sample, which means that bank-affiliated groups tend to pay a lower valuation.

*[TABLE VII]*

Target characteristics, however, show some differences between the two samples. In particular, the bank sample involves targets that have better ex ante performance measures. Target firms in bank deals have better liquidity (Cash/Total Assets), higher return on assets (EBITDA/Total Assets and EBITDA/Net Assets), and superior operating margins (EBITDA/Sales and Net Income/Sales). These patterns are consistent with banks possessing

superior information on potential targets. But this only makes the poorer outcomes of the bank sample more striking.<sup>7</sup>

Table VIII analyses the exit patterns in a regression framework. The baseline regressions in Panel A show that bank deals have a higher likelihood of an IPO exit than non-bank deals. This result is significant at the 5% level. On the other hand, the sub-sample of bank deals done by commercial banks is significantly more likely to experience bankruptcy. Thus, overall the exit results are mixed for bank deals. Panel B augments the baseline model with interaction terms with the peak year indicator. Once we control for these market conditions, there is virtually no difference between the two samples in terms of their IPO exits and trade-sale exits. However, commercial bank deals and large deals have a significantly higher likelihood of bankruptcy.

Interestingly, among the most significant variables is the interaction term between *Mixed type* and *Peak year*. This term is positive and highly significant statistically, indicating that mixed deals involving both bank-affiliated and non-bank private equity groups done at the peak of the market have markedly higher odds of bankruptcy. This result, combined with the previous result that deals financed at the peak of the market with affiliated banks participating in the syndicate enjoy significantly better terms, points to the concern that agency problem may be particularly severe in banks' involvement with private equity investments during market peaks.

[TABLE VIII]

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<sup>7</sup> We tried to distinguish between these hypotheses in other ways, without finding a definitive answer. In particular, we were concerned that the results could have been driven by unobserved heterogeneity between the deals undertaken by bank-affiliated and unaffiliated groups. For instance we looked at transactions by private equity groups that had been spun out of banks, such as MetalMark (JP Morgan) and Court Square (Citigroup). Arguably, the spin-off decisions were driven by the desire of the private equity management to get more credit and better economic returns, and were thus likely to be exogenous to the types of the deal. Thus, comparing deals before and after spin-offs should highlight the differences in financing and performance of the deals undertaken by bank-affiliated and unaffiliated groups while holding the type of the deals constant. As expected, we did not find significant differences in any deal characteristics before and after the spin-offs, but the sample size was too small for us to conduct further regression analysis on financing terms. We also focused on deals that generated interest from both affiliated and unaffiliated private equity firms, using the bidding data compiled by Officer, Ozbas, and Sensoy (2010). Unfortunately, only three cases in their sample (out of 19 with disclosed bidders' identity) attracted bids from affiliated and non-affiliated groups.

### C. Future Lender and Advisor Choice

We have shown that the parent bank's presence on the lending syndicate leads to significantly better financing terms for its private equity subsidiary, especially during the peaks of the market. One additional reason that bank private equity affiliates can be attractive to banks is that they seek to maximize profit over time. Having the private equity subsidiary as a financial sponsor on a transaction might guarantee the bank future businesses from the target in terms of additional lending, underwriting (for example, when the target firm eventually goes public or raises additional private capital), or M&A transactions. We investigate this hypothesis empirically.

To identify subsequent investment banking transactions by the targets, we collect all public offerings of equity, private placements of equity, and M&A data between 1980 and 2009 from the Thomson SDC database. For subsequent lending transactions, we use DealScan database. We then manually match the issuers in this dataset with the target firms in our private equity transaction dataset, and focus on the banking transactions *after* the original private equity transaction.

One problem is that we only observe the actual lenders and advisors chosen, and not all potential lenders and advisors for each deal. To overcome this information limitation, we create pair-wise hypothetical matches between potential lenders or underwriters with each deal. In particular, for potential lenders, we use the top 15 banks that finance LBO transactions identified by Ivashina and Kovner (2009). For the advisors, we use the top 15 investment banks over the sample period identified using SDC data. In this analysis, the dependent variable takes the value of 1 if that particular lender/advisor is actually chosen, and 0 otherwise. The key independent variable is *Bank-affiliated*, which takes the value of 1 if the lender/advisor is the parent bank of

the sponsor in the original private equity transaction. For example, suppose Goldman Sachs Capital Partners is the sole sponsor of a buyout of ABC Corp. ABC Corp subsequently issues equity, and the co-book-runners are Goldman Sachs and JP Morgan. In this case, there will be 15 observations involving ABC Corp's equity issuance in the completed dataset, one for each potential major underwriter. The dependent variable is set to 1 for the two observations where Goldman Sachs and JP Morgan were the potential underwriters, and 0 for the other 13 banks. The independent variable *Bank-affiliated* equals 1 for the observation listing Goldman as the potential underwriter but 0 for the observation involving JP Morgan.

Panels A, B, and C of Table IX report the results on future lender, M&A advisor, and underwriter choice, respectively. After controlling for sector, lender, and year fixed effects, affiliation is still an overwhelmingly strong predictor of lender choice, with a p-value close to 0. Marginal probability calculations show that an affiliated bank is 22% more likely to be chosen as a future lender than unaffiliated banks.

[TABLE IX]

Table IX also shows similar results in a couple of robustness checks. First, we are interested in whether the effects differ between banks with a commercial bank background and those that have primarily been investment banks. When we add an indicator for a commercial bank background, this variable turns up negative in the regression (unreported). Consistent with this, when we drop the commercial banks entirely from the regressions, we find that the results become even stronger: the marginal probability now increases to 40% (column 2). Finally, we are concerned that much of the result may be driven by Goldman Sachs, the most prominent player in the sample. Column 3 shows that while dropping Goldman Sachs from the sample weakens the above effect, the marginal probability is still strong (16%).

With respect to future M&A advisor choice and equity-underwriter choice (Panels B and C), we again find that an investment relationship significantly increases the parent bank's odds of being chosen. In the whole sample, parent banks of the affiliated private equity groups are 7% more likely to win future M&A mandates, and 18% more likely to be book-runners of future equity issuances. When we drop the commercial bank sample, the result becomes stronger in the M&A advisor choice equation, with virtually no change in the equity underwriter choice equation. Interestingly, when we exclude Goldman Sachs from the sample, affiliation no longer increases the parent banks' odds of being chosen to advise on future M&A deals (the marginal probability is 3%, with insignificant statistics). The effect of affiliation on underwriter choice also weakens (a marginal probability of 11%, as compared to 18% when Goldman is included), but z-stat is still highly significant.

Overall, results in this section show that, when lending bank and private equity investor are affiliates, the parent bank is significantly more likely to win future lending, M&A advisory, and equity underwriting business for that specific target.<sup>8</sup> This effect is true both for banks with a commercial or an investment banking origin. There is some evidence that Goldman Sachs plays an influential role in driving these results; but the phenomenon we document here certainly is not a Goldman Sachs phenomenon alone—excluding this group leaves most results highly significant.

#### *D. An “Unfair Advantage”? – Financing Terms in Peak Years Revisited*

When combined, a number of results in the previous sections suggest that there are risks in combining banking and private equity investing. For instance, we find that deals done by

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<sup>8</sup> This is consistent with, and generalizes, the finding in Hellmann, Lindsey, and Puri (2008) that prior VC relationships increase banks' odds of winning lending businesses.

bank-affiliated groups are financed at significantly better terms than other deals when the parent bank is part of the lending syndicate, especially during market peaks. Yet investments made by commercial banks during market peaks have significantly higher rates of bankruptcy. Thus, concerns about risks seem justified. But other questions naturally follow. To what extent are these patterns being driven by a few risk-taking banks seeking an “unfair advantage”? Or is this an industry-wide pattern? If the former, we might be more optimistic that market forces (as opposed to regulatory fiat) could at least partially address these concerns.

To gain some insights into these questions, we collect additional data on bank-level credit expansion measures, and relate these measures to financing terms. In particular, using DealScan, we construct bank-level variables that measure: (i) the growth of average loan originations to non-investment grade borrowers in the LBO peak years (1998-2000 and 2005-2007) as compared to the average in the three years preceding the peak, (ii) the growth of average loan originations for restructuring purposes (including LBOs, mergers and acquisitions, and stock repurchases) in the LBO peak years as compared to the average in the three years preceding the peak, and (iii) the contraction in overall credit origination in the year of economic recession following the LBO peak years. We examine whether the superior financing terms in peak years are primarily provided by banks that are particularly aggressive in opportunistic credit expansion in peak years.

Table X reports expanded regression models for the key financing terms. Compared to the baseline model of Table V, this table introduces the parent-bank level variables that indicate whether the parent bank of the transaction engaged in high credit expansion activities. Panel A and B use the banks’ expansion in non-investment grade and restructuring credit respectively to

identify “expanding banks.” Panel C uses the banks’ post-peak contraction to identify “contracting banks”. All three measures seek to capture the banks’ risk-taking behavior.

Consistent with baseline results in Table V, we find that deals involving the parent-bank on the lending syndicate are financed at better terms (larger amount, longer maturity, and lower yields). The effects on amount and maturity are concentrated in peak years while the effect on spreads is more general. The bank-level variables reveal additional patterns. In Panels A and B, aggressively expanding banks tend to finance smaller loans with the shorter maturity and lower spreads, everything else equal, but mixed syndicates that involve these banks undertake larger deals. In Panel C, when ex-post contraction to measure potential engagement in riskier business over the peak year, the results are weaker. All-in-all, the results suggest that this behavior is not confined to a few risk-seeking banks.

*[TABLE X]*

### **III. Conclusion**

This paper is motivated by recent regulatory efforts to limit the ability of banks to undertake proprietary investing and trading activities. Despite the controversy and policy debate that the proposed Volcker rule has engendered, we know remarkably little about how banks have fared as investors. Does the combination of banking and private equity investing endow banks with superior information that allows them to identify good prospects and garner superior returns? Or does the combination bestow banks with an unfair ability to expand their balance sheets, capturing benefits within the bank at the expense of the overall market and ultimately the tax payers? We focus here on understanding the experience of bank-affiliated funds with private equity to shed light on these questions.

We take a comprehensive look at the role of banks in the private equity industry. Examining 7,902 transactions between 1978 and 2009, we find that 26% of all private equity investments involved bank-affiliated private equity groups. The evidence seems consistent with important advantages for the bank affiliates. Prior to the transaction, targets of bank-affiliated funds have significantly better operating performance than other targets. These deals were financed at significantly better terms than other deals when the parent bank of the affiliated private equity group is one of key lenders in the lending syndicate. We show that having a private equity subsidiary as an investor in a deal significantly increases the odds of the parent bank being chosen as a future lender, M&A advisor, or equity underwriter. However, “cross-selling” of bank businesses is an unlikely explanation for the better loan terms given that this superior financing primarily occurs during the peaks of the private equity market.

It is also unlikely that better financing terms for bank-related private equity groups are explained by access to better targets. Despite the fact that bank groups’ targets have superior performance before the investment, exit outcomes are mixed, with slightly poorer performance in bank-related investments. Importantly, the under-performance is particularly true for investments made in peak years. Larger deals, commercial-bank-led transactions, and investments involving both bank-affiliated investors and stand-alone private equity firms done at the peaks of the market face significantly higher odds of bankruptcy.

Overall, the cyclicity of bank-affiliated transactions, the time-varying pattern of the financing benefit enjoyed by affiliated deals, and the generally worse outcomes of these deals done at market peaks raise questions about the desirability of combining banking with private equity investing. Private equity is highly cyclical, with investments during peak period exhibiting problematic performance on a variety of measures. The involvement of bank-affiliated funds

appears to exacerbate this cyclical, and to introduce significant risks into the system. While there is some evidence that banks enjoy some information related synergies in that their target firms tend to have better ex ante characteristics, our overall findings seem to indicate that their involvement pose significant issues as well.

These results, however, cannot answer the broader questions about the desirability of the Volcker rule. There is a need for considerable further research. To cite one example, our analysis indicates that the increased negative outcomes of bank-affiliated transactions are concentrated at market peaks. What the lasting social consequences of these unsuccessful outcomes are remains unclear. Andrade and Kaplan (1998) argue that the lasting effects of financial distress for private equity transactions in the early 1990s was quite modest, a view also consistent with the more aggregated analyses of Bernstein, et al. (2010). Thus the negative impact may be muted overall.

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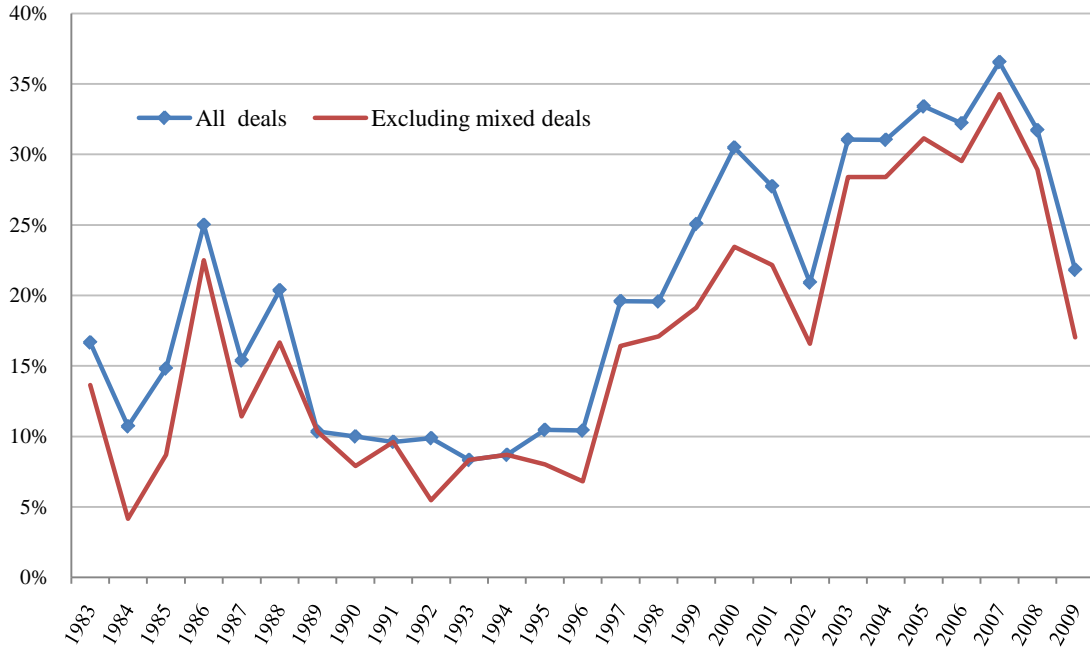
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**Figure 1**

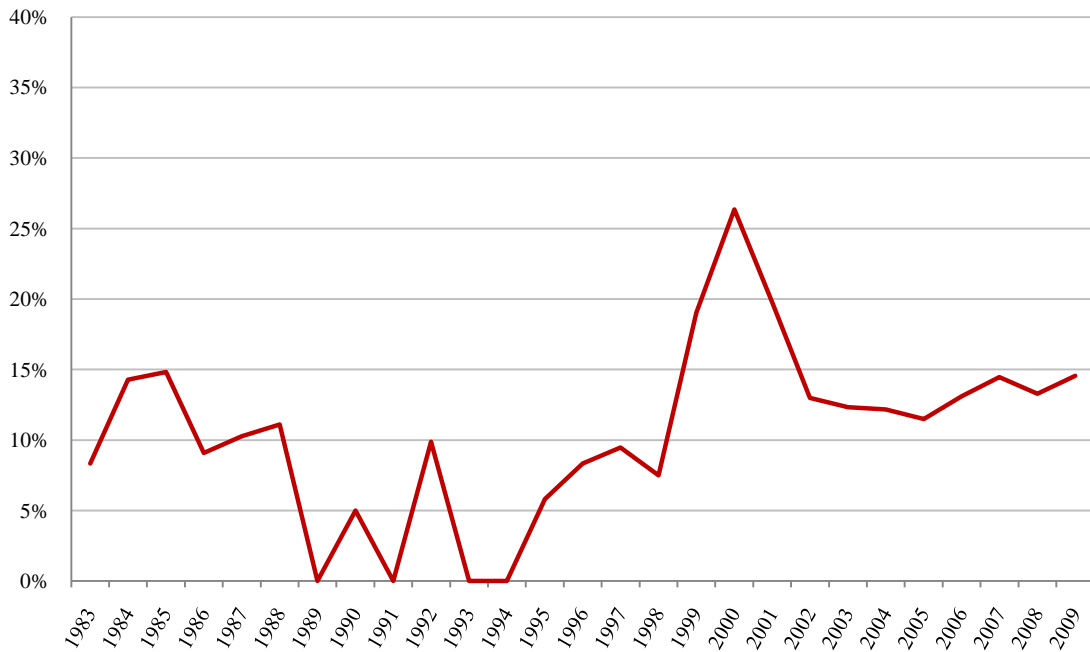
**Private equity activities over time: Deal counts**

Figures are compiled based on number of deals. Mixed deals are defined as deals backed by a syndication of private equity firms, where at least one of the investors is a bank-affiliated firm and at least one other investor is stand alone private equity firm.

*Panel A: Percentage of deals done by bank-affiliated PE firms*



*Panel B: Percentage of mixed deals (sample of bank-affiliated PE transactions)*

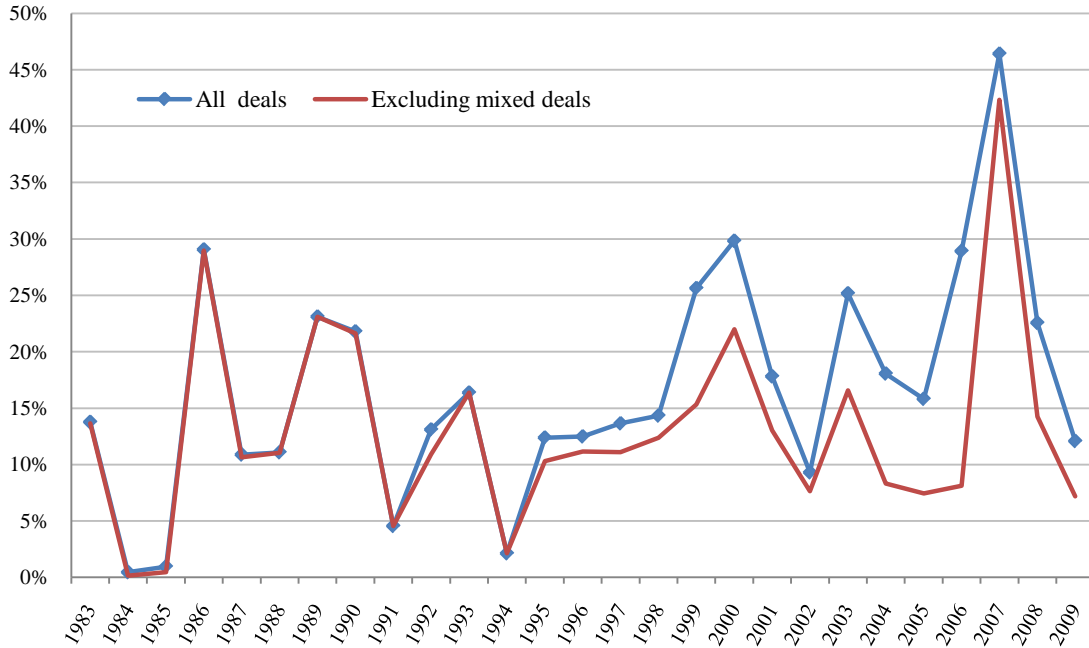


**Figure 2**

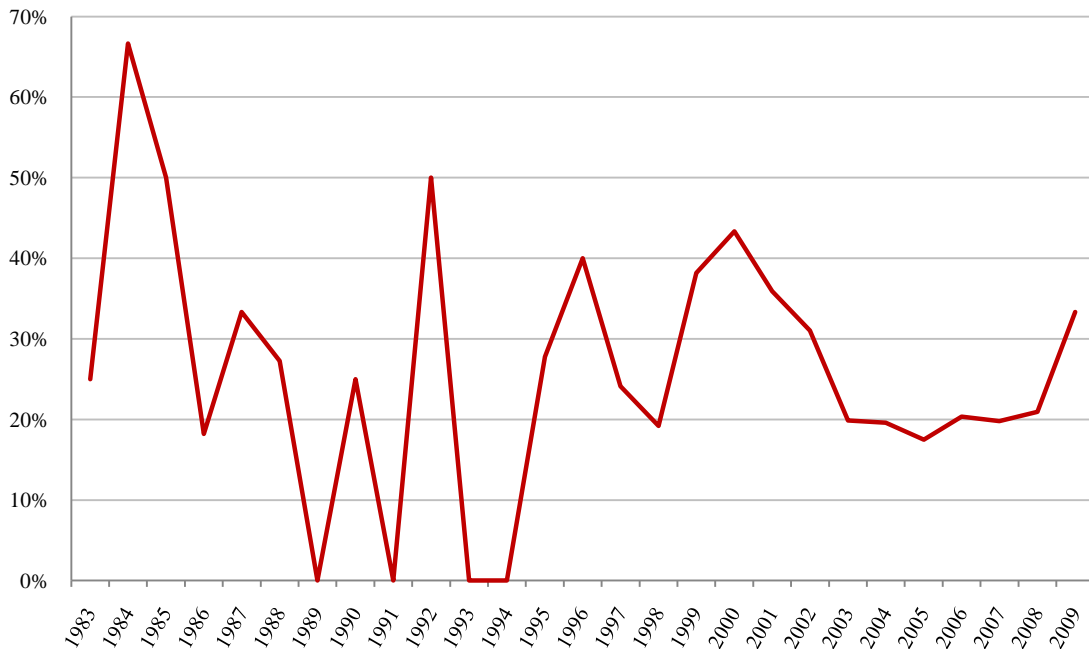
**Private equity activities over time: Dollar volume**

Figures are compiled based on dollar values of the transactions. Mixed deals are defined as deals backed by a syndication of private equity firms, where at least one of the investors is a bank-affiliated firm and at least one other investor is stand alone private equity firm.

*Panel A: Percentage of deals done by bank-affiliated PE firms*



*Panel B: Percentage of mixed deals (sample of bank-affiliated PE transactions)*



**Table I**  
**Number of Deals**

This table presents deal distribution by year. *Bank-affiliated* identifies deals backed by private equity firms affiliated with a bank. *Non-affiliated* identifies deals backed by stand-alone private equity firms. *Pure* deals are deals backed by only one type (affiliated or non-affiliated) of private equity investors. *Mixed* deals are defined as deals backed by a syndication of private equity firms, where at least one of the investors is a bank-affiliated firm and at least one other investor is stand-alone firm.

Year	Bank-affiliated	Non-affiliated	Total	% Bank-affiliated	Pure	Mixed	% Mixed
1978	0	1	1	0.00%	1	0	0.00%
1979	0	1	1	0.00%	1	0	0.00%
1980	0	1	1	0.00%	1	0	0.00%
1981	0	5	5	0.00%	5	0	0.00%
1982	0	10	10	0.00%	10	0	0.00%
1983	4	20	24	16.67%	22	2	8.33%
1984	3	25	28	10.71%	24	4	14.29%
1985	4	23	27	14.81%	23	4	14.81%
1986	11	33	44	25.00%	40	4	9.09%
1987	6	33	39	15.38%	35	4	10.26%
1988	11	43	54	20.37%	48	6	11.11%
1989	6	52	58	10.34%	58	0	0.00%
1990	4	36	40	10.00%	38	2	5.00%
1991	5	47	52	9.62%	52	0	0.00%
1992	8	73	81	9.88%	73	8	9.88%
1993	7	77	84	8.33%	84	0	0.00%
1994	10	105	115	8.70%	115	0	0.00%
1995	18	154	172	10.47%	162	10	5.81%
1996	25	215	240	10.42%	220	20	8.33%
1997	58	238	296	19.59%	268	28	9.46%
1998	73	300	373	19.57%	345	28	7.51%
1999	199	595	794	25.06%	643	151	19.02%
2000	450	1,026	1,476	30.49%	1,087	389	26.36%
2001	167	435	602	27.74%	483	119	19.77%
2002	87	329	416	20.91%	362	54	12.98%
2003	136	302	438	31.05%	384	54	12.33%
2004	153	340	493	31.03%	433	60	12.17%
2005	160	319	479	33.40%	424	55	11.48%
2006	172	362	534	32.21%	464	70	13.11%
2007	197	342	539	36.55%	461	78	14.47%
2008	105	226	331	31.72%	287	44	13.29%
2009	12	43	55	21.82%	47	8	14.55%
<b>Total</b>	<b>2,091</b>	<b>5,811</b>	<b>7,902</b>	<b>26.46%</b>	<b>6,700</b>	<b>1,202</b>	<b>15.21%</b>

**Table II**  
**League Table of Private Equity Activities**

This table presents deal distribution by private equity firm. *Bank-affiliated* identifies deals backed by private equity firms affiliated with a bank. There are a total of 14 bank-affiliated private equity firms in our sample. For compactness, non-affiliated sample only reports top 15 out of 51 private equity firms that are use as a control sample.

*Panel A: Deal distribution by PE firm, equally-weighted*

Rank	Bank-affiliated sample			Non-affiliate sample (Top 15)		
	Sponsor name	Number of deals	Percent of total	Sponsor name	Number of deals	Percent of total
1	Goldman Sachs Capital Partners	684	29.17%	Oak Investment Partners	1,026	12.62%
2	JPMorgan Capital	341	14.54%	TA Associates Inc	544	6.69%
3	CSFB Private Equity	294	12.54%	Warburg Pincus	485	5.97%
4	Citigroup Private Equity	279	11.90%	Sprout Group	414	5.09%
5	Lehman Brothers Merchant Banking	197	8.40%	Bain Capital	334	4.11%
6	Wachovia Partners	167	7.12%	Carlyle Group	298	3.67%
7	Deutsche Bank Capital Markets	162	6.91%	Harbour Group	295	3.63%
8	Wasserstein & Co	87	3.71%	Technology Crossover Ventures	289	3.56%
9	Merrill Lynch Capital Partners	59	2.52%	Advent	285	3.51%
10	Morgan Stanley Private Equity	37	1.58%	Summit Partners	248	3.05%
11	CCMP Capital Advisors	18	0.77%	J H Whitney & Co	241	2.97%
12	Macquarie Funds Management	9	0.38%	TPG	222	2.73%
13	Diamond Castle	8	0.34%	General Atlantic LLC	205	2.52%
14	DLJ Merchant Banking	3	0.13%	Blackstone Group	177	2.18%
15	--	--	--	KKR & Co	154	1.89%
	Total	2,345	100.00%	Total (full sample)	8,127	100.00%

**Table II - continued***Panel B: Deal distribution by PE firm, value-weighted (million USD)*

		Bank-affiliated sample		Non-affiliated sample (Top 15)		
Rank	Sponsor name	Total transactions value	Percent of total	Sponsor name	Total transactions value	Percent of total
1	Goldman Sachs Capital Partners	259,595.50	36.01%	KKR & Co	291,840.00	15.70%
2	Citigroup Private Equity	124,967.70	17.34%	TPG	253,524.80	13.64%
3	Lehman Brothers Merchant Banking	88,477.70	12.27%	Blackstone Group	222,870.70	11.99%
4	Merrill Lynch Capital Partners	84,210.65	11.68%	Bain Capital	139,631.50	7.51%
5	Deutsche Bank Capital Markets	45,711.64	6.34%	Carlyle Group	133,948.80	7.21%
6	JPMorgan Capital	28,428.82	3.94%	Thomas H Lee Trust	97,397.17	5.24%
7	Wachovia Partners	23,117.23	3.21%	Apollo Partners	90,544.53	4.87%
8	CSFB Private Equity	22,968.51	3.19%	Providence Equity Partners	75,746.80	4.07%
9	CCMP Capital Advisors	15,422.23	2.14%	Madison Dearborn Partners	65,030.27	3.50%
10	Macquarie Funds Management	12,082.77	1.68%	Warburg Pincus LLC	52,167.19	2.81%
11	DLJ Merchant Banking	5,452.64	0.76%	Silver Lake	34,511.41	1.86%
12	Wasserstein & Co	4,651.38	0.65%	Welsh Carson Anderson &	33,665.60	1.81%
13	Diamond Castle	3,502.42	0.49%	Clayton Dubilier & Rice Inc	31,518.00	1.70%
14	Morgan Stanley Private Equity	2,304.28	0.32%	Hillman & Freeman Co	30,172.36	1.62%
15	--	--	--	Oak Investment Partners	30,096.46	1.62%
Total		720,893.47	100.00%	Total (Whole Sample)	1,858,825.30	100.00%

**Table III**  
**Deal Distribution by Industry**

This table presents deal distribution by industrial sector. We use Capital IQ to identify sector for each transaction. *Bank-affiliated* identifies deals backed by private equity firms affiliated with a bank. *Non-affiliated* identifies deals backed by stand-alone private equity firms. We first calculate industry distribution for each individual private equity firm. We then average and report the mean distribution for each type (affiliated or non-affiliated) of investor. The t-stat is based on the cross-section of individual firms in each sample. \*\*\*, \*\*, \* indicate statistical significance at 1%, 5% and 10% level, respectively.

Sector	Equally-weighted			Value-weighted		
	Bank-affiliated sample	Non-affiliated sample	Diff. t-stat	Bank-affiliated sample	Non-affiliated sample	Diff. t-stat
Consumer Discretionary	12.4%	17.7%	-1.78 *	16.5%	23.0%	-0.71
Consumer Staples	1.2%	3.6%	-2.97 ***	1.1%	4.2%	-2.43 **
Energy	4.2%	6.2%	-0.62	5.2%	7.1%	-0.43
Financials	7.2%	5.5%	0.66	16.4%	7.9%	1.86 *
Healthcare	13.6%	9.8%	1.00	14.1%	7.8%	1.10
Industrials	10.0%	9.4%	0.28	7.1%	12.5%	-1.41
Information Technology	38.5%	35.8%	0.65	14.8%	20.4%	-1.01
Materials	2.0%	3.2%	-1.49	1.8%	3.8%	-1.51
Telecommunication Services	4.5%	6.6%	-1.07	3.9%	7.2%	-1.69
Utilities	6.4%	2.1%	1.16	19.2%	6.0%	1.77

**Table IV**  
**Financing Terms**

This table examines financing terms—amount, maturity and spread paid over LIBOR—on the loans backing the private equity transactions. Loan data comes from DealScan and is available for the 1988-2008 period. Each observation in the sample corresponds to a different transaction. *Bank-affiliated* is a dummy equal to 1 if the deal is backed by a private equity firm affiliated with a bank. *Mixed type deal* is a dummy equal to 1 if the deal is backed by a syndication of private equity firms, where at least one of the investors is a bank-affiliated firm and at least one other investor is a stand-alone firm. *Parent bank in syndicate* is a dummy equal to 1 if the parent bank of the bank-affiliated private equity sponsor is on the lending syndicate. We only count lenders participate in the first and second tier of the lending syndicate. *Investment grade* is a dummy equal to 1 if borrower's is BBB or higher. \*\*\*, \*\*, \* indicate statistical significance at 1%, 5% and 10% level, respectively.

*Panel A: Full sample*

Dependent variable:	Loan amount		Loan maturity		Loan spread	
	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Bank-affiliated	-162.85	-1.84 *	-2.06	-3.91 ***	19.66	2.35 **
Mixed type deal	1,632.78	10.05 ***	5.84	6.03 ***	-20.57	-1.34
Parent bank in syndicate	800.92	5.68 ***	4.32	5.15 ***	-46.64	-3.51 ***
Investment grade	738.12	3.25 ***	-1.13	-0.83	-81.68	-3.81 ***
Constant	405.43	8.93 ***	6.21	22.98 ***	322.89	75.36 ***
Fixed effects:						
Sector	Yes		Yes		Yes	
Year	Yes		Yes		Yes	
Observations	2,105		2,105		2,105	
R-squared	0.20		0.05		0.20	

*Panel B: Excluding growth capital deals*

Dependent variable:	Loan amount		Loan maturity		Loan spread	
	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Bank-affiliated	96.67	0.32	-0.01	-0.04	-1.70	-0.08
Mixed type deal	1,449.25	3.77 ***	-0.27	-0.67	-7.82	-0.28
Parent bank in syndicate	1,667.31	4.04 ***	0.83	1.93 *	-87.04	-2.88 ***
Investment grade	2,213.89	3.33 ***	0.53	0.76	-82.13	-1.69 *
Constant	678.81	2.39 **	5.57	18.91 ***	388.87	18.71 ***
Fixed effects:						
Sector	Yes		Yes		Yes	
Year	Yes		Yes		Yes	
Observations	643		643		2,105	
R-squared	0.29		0.07		0.15	

**Table IV - continued***Panel C: Period before Gramm-Leach-Bliley Act (1988-1999)*

Dependent variable:	Loan amount		Loan maturity			Loan spread	
	Coeff.	<i>t</i> -stat	Coeff.	<i>t</i> -stat		Coeff.	<i>t</i> -stat
Bank-affiliated	17.16	0.41	-0.41	-1.40		10.74	1.40
Mixed type deal	-321.94	-1.17	1.07	0.55		24.55	0.49
Parent bank in syndicate	141.42	1.65	2.09	3.43	***	-2.10	-0.13
Investment grade	312.91	3.20	-0.37	-0.53		-21.16	-1.18
Constant	238.68	11.90	5.31	37.32	***	242.81	66.13
Fixed effects:							
Sector	Yes		Yes			Yes	
Year	Yes		Yes			Yes	
Observations	694		694			694	
<i>R</i> -squared	0.07		0.03			0.12	

*Panel D: Period after Gramm-Leach-Bliley Act (2000-2008)*

Dependent variable:	Loan amount		Loan maturity			Loan spread	
	Coeff.	<i>t</i> -stat	Coeff.	<i>t</i> -stat		Coeff.	<i>t</i> -stat
Bank-affiliated	-223.86	-1.74	-2.73	-3.57	***	23.13	1.97
Mixed type deal	1,618.84	8.05	5.84	4.88	***	-16.66	-0.90
Parent bank in syndicate	925.11	4.90	4.91	4.37	***	-56.39	-3.26
Investment grade	1,002.54	2.90	-1.81	-0.88		-118.98	-3.76
Constant	478.29	7.07	6.64	16.48	***	362.96	58.53
Fixed effects:							
Sector	Yes		Yes			Yes	
Year	Yes		Yes			Yes	
Observations	1,411		1,411			1,411	
<i>R</i> -squared	0.19		0.05			0.04	

**Table V**  
**Importance of Peak Years in Setting Financing Terms**

This table re-examines financing terms—amount, maturity and spread paid over LIBOR—on the loans backing the private equity transactions. The sample and variables definitions are exactly the same as in Table IV. The focus is on the interaction terms with the *Peak year* dummy equal to 1 for 1998-2000, 2005-2007 years and 0 otherwise. In Panel B *Peak year* dummy is equal to 1 for 2005-2007 years and 0 otherwise. \*\*\*, \*\*, \* indicate statistical significance at 1%, 5% and 10% level, respectively.

<i>Panel A: All peak periods</i>									
Dependent variable:	Loan amount			Loan maturity			Loan spread		
	Coeff.	<i>t</i> -stat		Coeff.	<i>t</i> -stat		Coeff.	<i>t</i> -stat	
Bank-affiliated	-131.56	-1.49		-1.94	-3.68	***	18.92	2.26	**
Mixed type deal	231.49	0.66		0.85	0.40		27.96	0.83	
Parent bank in syndicate	223.77	0.99		1.85	1.36		-42.17	-1.96	**
Mixed type*Peak year	1,633.47	4.10	***	5.73	2.41	**	-59.72	-1.58	
Parent bank in syndicate*Peak year	779.42	2.90	***	3.40	2.12	**	-3.85	-0.15	
Investment grade	719.09	3.19	***	-1.20	-0.89		-81.31	-3.79	***
Constant	400.21	8.88	***	6.19	22.97	***	323.06	75.40	***
Fixed effects:									
Sector	Yes			Yes			Yes		
Year	Yes			Yes			Yes		
Observations	2,105			2,105			2,105		
<i>R</i> -squared	0.21			0.05			0.16		
<i>Panel B: 2005-2007 peak period</i>									
Dependent variable:	Loan amount			Loan maturity			Loan spread		
	Coeff.	<i>t</i> -stat		Coeff.	<i>t</i> -stat		Coeff.	<i>t</i> -stat	
Bank-affiliated	-120.11	-1.36		-1.90	-3.60	***	18.17	2.17	**
Mixed type deal	216.03	0.62		0.71	0.34		22.88	0.69	
Parent bank in syndicate	269.02	1.40		2.26	1.96	*	-26.55	-1.45	
Mixed type*Peak year	1,549.18	3.89	***	5.54	2.32	**	-45.85	-1.21	
Parent bank in syndicate*Peak year	911.79	3.56	***	3.57	2.33	**	-35.20	-1.45	
Investment grade	725.35	3.22	***	-1.18	-0.87		-81.26	-3.79	***
Constant	403.04	8.95	***	6.20	23.01	***	322.94	75.39	***
Fixed effects:									
Sector	Yes			Yes			Yes		
Year	Yes			Yes			Yes		
Observations	2,105			2,105			2,105		
<i>R</i> -squared	0.21			0.05			0.16		

**Table VI**  
**Exit Distribution**

This table compares the frequency of different types of exits between the bank-affiliated and the unaffiliated sample. Exit outcome was compiled using Stromberg (2008) data supplemented with hand collected information from Capital IQ and SDC Platinum. Profitable exit is an indicator variable that equals 1 if the exit multiple exceeds 1 and 0 otherwise. Exit multiple is exit value divided by original transaction value. For trade-sale exits, the exit value is taken as the transaction value of the sale. For bankruptcies, exit value is taken as the assets of the firm at bankruptcy filing. For IPOs, exit value is the total IPO proceeds. Exit value information is obtained from Stromberg (2008). *t*-statistics correspond to the differences in means in the two samples. \*\*\*, \*\*, \* indicate statistical significance at 1%, 5% and 10% level, respectively.

Type of exit:	All years			Peak years			Non-peak years		
	Bank-affiliated	Unaffiliated	<i>t</i> -stat	Bank-affiliated	Unaffiliated	<i>t</i> -stat	Bank-affiliated	Unaffiliated	<i>t</i> -stat
IPO	0.137	0.126	0.76	0.135	0.090	2.22 **	0.141	0.153	-0.53
Trade sale	0.725	0.728	-0.13	0.730	0.785	-2.04 **	0.719	0.684	0.25
Bankruptcy	0.077	0.057	1.71 *	0.078	0.069	0.53	0.076	0.047	1.65 *
Profitable exit	0.626	0.740	-3.14 ***	0.558	0.670	-2.22 **	0.720	0.800	-1.57

**Table VII**  
**Transaction and Target Characteristics**

This table compares detailed information for targets and transactions for private equity firms affiliated (case) and unaffiliated (control) with a bank. The data was compiled from Capital IQ. *Bank-affiliated* identifies deals backed by private equity firms affiliated with a bank. Mixed deals are defined as deals backed by a syndication of private equity firms, where at least one of the investors is a bank-affiliated firm and at least one other investor is stand-alone firm. *t*-statistics correspond to the differences in means between the two samples. \*\*\*, \*\*, \* indicate statistical significance at 1%, 5% and 10% level, respectively.

	Full sample			Excluding mixed deals		
	Bank-affiliated sample	Non-affiliated sample	<i>t</i> -stat	Bank-affiliated sample	Non-affiliated sample	<i>t</i> -stat
<i>Panel A: Transaction characteristics</i>						
Transaction size	346.583	285.052	1.01	157.2925	210.6267	-1.26
Cash portion	0.851	0.856	-0.30	0.8531	0.8535	-0.02
Implied enterprise value/EBITDA	11.639	14.328	-1.76	9.9777	14.4356	-2.68
Implied enterprise value/Revenue	2.890	2.372	1.45	2.6034	2.2836	0.64
Implied equity value/Net income	42.287	71.159	-1.37	49.1691	80.4726	-1.10
Implied equity value/Book value	5.304	3.732	1.60	4.8755	3.6721	0.76
<i>Panel B: Target characteristics</i>						
Total asset	1,037.57	1,791.17	(2.66)	517.83	1,622.74	-3.71
Sales	1,656.66	1,024.14	0.64	1,664.45	909.26	0.58
Total debt/Total assets	0.324	0.327	-0.11	0.3263	0.3436	-0.41
Total debt/EBITDA	3.409	14.664	-1.39	3.6496	18.6033	-1.38
Cash/Total assets	0.309	0.226	5.46	0.3129	0.2002	6.77
EBITDA/Total assets	0.657	0.385	4.35	0.6978	0.3445	4.69
EBITDA/Net assets	2.555	1.061	3.27	2.7707	0.7476	3.60
EBITDA/Sales	0.264	0.222	3.03	0.2482	0.2113	2.36
Net income/Sales	0.243	0.163	4.81	0.2434	0.1527	4.98

**Table VIII**  
**Exit Analysis**

This table presents analysis of the type of investment exit. Data on exit outcome was compiled using Capital IQ and SDC Platinum. *Investment bank* is a dummy equal to 1 if the deal is backed by a private equity firm affiliated with an investment bank. *Commercial bank* is a dummy equal to 1 if the deal is backed by a private equity firm affiliated with a commercial bank. *Mixed type deal* is a dummy equal to 1 if the deal is backed by a syndication of private equity firms, where at least one of the investors is a bank-affiliated firm and at least one other investor is a stand-alone firm. In Panel B, the focus is on the interaction terms with the *Peak period* dummy equal to 1 for transactions close in 1985-1988, 1998-2000, 2005-2007 years and 0 otherwise. \*\*\*, \*\*, \* indicate statistical significance at 1%, 5% and 10% level, respectively.

*Panel A: Benchmark analysis*

Dependent variable (type of exit):	IPO		Trade-sale		Bankruptcy		Multiple	
	Coeff.	<i>t</i> -stat	Coeff.	<i>t</i> -stat	Coeff.	<i>t</i> -stat	Coeff.	<i>t</i> -stat
Investment bank	0.0428	1.98 **	-0.0078	-0.28	-0.0234	-1.43	-29.7309	-1.16
Commercial bank	0.0095	0.35	-0.0858	-2.45 **	0.0616	3.00 ***	0.2587	0.01
Mixed type deal	0.0130	0.70	-0.0492	-2.05 **	0.0158	1.12	-6.1143	-0.27
Holding months	0.0001	0.09	-0.0032	-1.84 *	0.0025	2.43 **	2.8943	1.69 *
Transaction size	0.0001	10.63 ***	-0.0001	-7.06 ***	0.0000	-1.02	-0.0250	-1.14
Fixed effects:								
Sector	Yes		Yes		Yes		Yes	
Exit-year	Yes		Yes		Yes		Yes	
Deal-year	Yes		Yes		Yes		Yes	
Observations	2,147		2,147		2,147		931	
<i>R</i> -squared	0.21		0.23		0.17		0.03	

**Table VIII – continued**

*Panel B: Including peak year interaction terms*

Dependent variable (type of exit):	IPO		Trade-sale		Bankruptcy		Multiple		
	Coeff.	<i>t</i> -stat	Coeff.	<i>t</i> -stat	Coeff.	<i>t</i> -stat	Coeff.	<i>t</i> -stat	
Investment bank	0.0522	1.46	-0.0037	-0.08	-0.0177	-0.66	-0.0609	-0.84	
Commercial bank	-0.0141	-0.32	-0.0700	-1.23	0.0913	2.75 ***	-0.0046	-0.05	
Mixed type deal	0.0243	0.78	-0.0246	-0.61	-0.0493	-2.09 **	0.1236	1.9 *	
Investment bank*Peak year	-0.0145	-0.32	-0.0077	-0.13	-0.0089	-0.26	-0.0689	-0.73	
Commercial bank*Peak year	0.0377	0.68	-0.0276	-0.38	-0.0471	-1.12	0.1233	1.01	
Mixed type*Peak year	-0.0170	-0.44	-0.0378	-0.76	0.0989	3.42 ***	-0.1536	-1.91 *	
Holding months	0.0001	0.09	-0.0032	-1.88 *	0.0025	2.47 **	0.0005	0.15	
Transaction size	0.0001	10.63 ***	-0.0001	-7.00 ***	0.0000	-1.08	0.0000	-0.79	
Fixed effects:									
Sector	Yes		Yes		Yes		Yes		
Exit-year	Yes		Yes		Yes		Yes		
Deal-year	Yes		Yes		Yes		Yes		
Observations	2,147		2,147		2,147		931		
<i>R</i> -squared	0.21		0.23		0.18		0.11		

**Table IX**  
**Future Bank Business Allocation**

This table examines the choice of banks for transactions following the original takeover— subsequent loans and exit related transactions (sale to a different firm or IPO). The empirical model is a conditional logit. Each observation is a pairing of the private equity firm with a set of potential lenders. The dependent variable is a dummy equal to 1 for the lenders chosen for the transaction and 0 otherwise. The explanatory variable of interest is *Bank-affiliated* equal to 1 if the private equity firm was affiliated with that particular lender, 0 if not. In conditional logit model, deal characteristics are not required, however, we include lender fixed effects to account for the fact that some lenders do more deals than others. The analysis also includes industry and year fixed effects. \*\*\*, \*\*, \* indicate statistical significance at 1%, 5% and 10% level, respectively.

	Full sample			Excluding commercial banks			Excluding Goldman Sachs		
	Coeff.	dF/dx	z-stat	Coeff.	dF/dx	z-stat	Coeff.	dF/dx	z-stat
<i>Panel A: Lender choice</i>									
Bank-affiliated	0.8451	0.2261	12.39 ***	1.3066	0.4081	11.41 ***	0.6761	0.1680	8.59 ***
Fixed effects:									
Lender	Yes			Yes			Yes		
Sector	Yes			Yes			Yes		
Year	Yes			Yes			Yes		
Observations	34,162			30,093			32,840		
Pseudo $R^2$ (%)	6.55			6.37			6.40		
<i>Panel B: M&amp;A advisor choice</i>									
Bank-affiliated	0.5473	0.0739	3.91 ***	0.6966	0.1243	4.33 ***	0.3178	0.0370	1.37
Fixed effects:	Yes			Yes			Yes		
Lender	Yes			Yes			Yes		
Sector	Yes			Yes			Yes		
Year	Yes			Yes			Yes		
Observations	23,775			15,447			17,832		
Pseudo $R^2$ (%)	0.002			0.003			0.000		
<i>Panel C: Underwriter choice</i>									
Bank-affiliated	0.9891	0.1800	8.28 ***	1.0091	0.1862	7.54 ***	0.7214	0.1134	4.29 ***
Fixed effects:									
Lender	Yes			Yes			Yes		
Sector	Yes			Yes			Yes		
Year	Yes			Yes			Yes		
Observations	20,600			17,775			14,784		
Pseudo $R^2$ (%)	0.009			0.008			0.320		

**Table X**  
**Relating Financing Terms with Credit Expansion**

This table expands results on financing terms reported in Table V. The focus is on the interaction terms with the bank-specific variables. The goal of these additional interaction terms is to see if the better financing terms in peak years are related to riskier activities at the bank level. The sample and variables definitions are exactly the same as in Table IV. The *Peak year* dummy is equal to 1 for 1998-2000 and 2005-2007 and 0 otherwise. In Panel A, *Expanding banks* is a dummy equal to 1 for banks that grow loan originations to non-investment grade borrowers during the corresponding peak year period as compared to the average in the three years preceding the peak. In Panel B *Expanding banks* is a dummy equal to 1 for banks that grow loan originations for restructuring purposes (including LBOs, mergers and acquisitions, and stock repurchases) in the LBO peak years as compared to the average in the three years preceding the peak. In Panel C, *Contracting banks* is a dummy equal to 1 for banks with below the median contraction in overall credit origination in the year of economic recession following the peak years. All regressions include industry and year fixed effects. \*\*\*, \*\*, \* indicate statistical significance at 1%, 5% and 10% level, respectively.

*Panel A: Banks with the large expansion into non-investment grade loans*

Dependent variable:	Loan amount		Loan maturity		Loan spread		
	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	
Bank-affiliated	-135.10	-1.5	-1.60	-2.97	17.12	1.99	***
Mixed type deal	235.90	0.67	0.82	0.39	27.94	0.83	
Parent bank in syndicate	222.51	0.98	1.59	1.17	-40.62	-1.89	*
Mixed type*Peak year	977.19	2.28	4.54	1.77	-22.88	-0.56	**
Parent bank in syndicate*Peak year	1,512.36	4.37	7.37	3.55	-60.34	-1.83	***
Mixed type*Peak year*Expanding banks	1,407.33	3.69	0.48	0.21	-67.02	-1.85	*
Parent bank in syndicate*Peak year*Expanding banks	-1,142.45	-3.48	-5.73	-2.92	85.36	2.73	***
Investment grade	710.42	3.16	-1.14	-0.84	-81.31	-3.8	***
Constant	412.02	9.11	6.14	22.68	322.81	74.91	***
Observations	2,105		2,105		2,105		
R-squared	0.22		0.06		0.16		

**Table X-continued***Panel B: Banks with the large expansion into restructuring loans*

Dependent variable:	Loan amount			Loan maturity			Loan spread		
	Coeff.	<i>t</i> -stat		Coeff.	<i>t</i> -stat		Coeff.	<i>t</i> -stat	
Bank-affiliated	-170.82	-1.9	*	-1.54	-2.86	***	18.34	2.13	**
Mixed type deal	240.35	0.68		0.82	0.39		27.88	0.83	
Parent bank in syndicate	247.84	1.1		1.54	1.14		-41.58	-1.93	*
Mixed type*Peak year	860.89	2.01	**	4.29	1.68	*	-35.77	-0.88	
Parent bank in syndicate*Peak year	1,376.26	3.97	***	8.21	3.96	***	-36.39	-1.1	
Mixed type*Peak year*Expanding banks	1,837.59	4.85	***	0.72	0.32		-46.74	-1.29	
Parent bank in syndicate*Peak year*Expanding banks	-985.35	-3	***	-6.92	-3.52	***	49.89	1.59	
Investment grade	675.22	3.01	***	-1.31	-0.97		-79.86	-3.72	***
Constant	422.53	9.35	***	6.14	22.67	***	322.73	74.76	***
Observations	2,105			2,105			2,105		
<i>R</i> -squared	0.22			0.05			0.16		

*Panel C: Banks with the largest post-peak credit contraction*

Dependent variable:	Loan amount			Loan maturity			Loan spread		
	Coeff.	<i>t</i> -stat		Coeff.	<i>t</i> -stat		Coeff.	<i>t</i> -stat	
Bank-affiliated	-186.36	-2.1	**	-1.90	-3.57	***	20.59	2.43	**
Mixed type deal	234.09	0.67		0.83	0.39		27.86	0.83	
Parent bank in syndicate	260.06	1.15		1.81	1.34		-43.29	-2.01	
Mixed type*Peak year	1,216.35	2.98	***	5.07	2.07	**	-48.38	-1.24	
Parent bank in syndicate*Peak year	774.80	2.68	***	4.43	2.55	**	-2.23	-0.08	
Mixed type*Peak year*Contracting banks	1,862.50	4.37	***	2.63	1.03		-51.08	-1.26	
Parent bank in syndicate*Peak year*Contracting banks	-254.32	-0.78		-3.11	-1.59		3.03	0.1	
Investment grade	686.97	3.06	***	-1.24	-0.92		-80.42	-3.75	***
Constant	418.94	9.3	***	6.19	22.84	***	322.50	74.92	***
Observations	2,105			2,105			2,105		
<i>R</i> -squared	0.22			0.05			0.16		