*Equity Analysts Affiliated with Corporate Lenders**

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Abstract

Equity analysts affiliated with corporate lenders publish superior research on borrowers, consistent with private information sharing within financial institutions. Relative to other analysts, lender-affiliated analysts improve the accuracy of their earnings forecasts after a lending relationship is established, and they are more likely to amend their research on borrowers ahead of revelation of adverse credit-related information. Borrowers are also more likely to choose banks whose affiliated analysts maintain more favorable recommendations on their stock. Additional analyses suggest that these favorable recommendations can be partially explained by strategic bias induced by lender-affiliated analysts. Lending-related informational advantages persist beyond Regulation FD and the Global Settlement, but strategic use of bias ends with the Global Settlement. Stock market reactions to research modifications suggest investors appreciate the "specialness" of lender-affiliated analysts.

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Abstract

Equity analysts affiliated with corporate lenders publish superior research on borrowers, consistent with private information sharing within financial institutions. Relative to other analysts, lender-affiliated analysts improve the accuracy of their earnings forecasts after a lending relationship is established, and they are more likely to amend their research on borrowers ahead of revelation of adverse credit-related information. Borrowers are also more likely to choose banks whose affiliated analysts maintain more favorable recommendations on their stock. Additional analyses suggest that these favorable recommendations can be partially explained by strategic bias induced by lender-affiliated analysts. Lending-related informational advantages persist beyond Regulation FD and the Global Settlement, but strategic use of bias ends with the Global Settlement. Stock market reactions to research modifications suggest investors appreciate the "specialness" of lender-affiliated analysts.

In this paper we consider the intersection of equity research and commercial lending, which is a combination that has not received much attention in the academic literature. Numerous researchers have argued that lenders are "special," and that they reduce information asymmetry by screening and monitoring borrowers.[1] Spurred by the Graham-Leach-Bliley Financial Services Modernization Act of 1999's repeal of prohibitions on universal banking, financial institutions have increasingly bridged the gap between commercial and investment banking.[2] This gives rise to possible information spillovers between "special" experts in gathering private information (commercial banks) and a group of capital market participants whose primary role is to provide high quality information on firms to the marketplace (equity analysts). If commercial banks are indeed "special" in this way, and bankers share information with their affiliated research departments, then the affiliated analysts may produce more accurate research. On the other hand, if institutions restrict the flow of this information then potential informational gains may not materialize.[3]

Our first main set of results indicate that analysts at brokerage houses affiliated with banking entities that issue loans (lender-affiliated analysts) appear to have an informational advantage over other analysts. Using a difference-in-difference analysis, we find that lender-affiliated analysts are more accurate at forecasting the earnings of companies who borrow from their affiliated banks (relative to both other analysts' performance and their own pre-loan performance). The accuracy gains are more pronounced for loans with higher potential to generate loan-related information. These loans include those issued by a sole lender or by a

[1] See, for example, Leland and Pyle (1977); Campbell and Krakaw (1980); Diamond (1984, 1991); Fama (1985); and Rajan and Winton (1995).

[2] See Drucker and Puri (2005) for evidence on the gains from concurrent commercial and investment banking.

[3] Indeed, Regulation Fair Disclosure (Reg. FD), which was enacted in 2000, was meant to remove analysts' preferential access to information. It is not yet clear whether the quality of affiliated analysts' research has declined as a result of the regulation.

small loan syndicate, and those with a higher fraction retained by the syndicate lead; they also include loans that result in larger economic stakes for the bank in the borrower.[4]

Lender-affiliated analysts are also more likely than other analysts to negatively modify their research prior to the revelation of adverse information about borrowers' credit quality. Lender-affiliated analysts are more likely to reduce earnings forecasts or downgrade stock recommendations in the quarters preceding credit rating downgrades, large jumps in the price of credit default swaps on borrowers' debt, and adverse earnings restatements. Overall, our first set of results provides strong evidence that lender-affiliated analysts incorporate private information obtained from lending relationships into their research on borrowers.

Our second main result is that when firms take out loans from banks with affiliated analysts, they tend to borrow from banks whose affiliated analysts maintain more favorable recommendations. This suggests that lender-affiliated analysts' research impacts potential borrowers' choice of lenders. Firms seeking loans may choose to borrow from banks that view them favorably, and one important signal may be the affiliated brokerage houses' published research.[5]

We next consider whether lender-affiliated analysts intentionally bias their research in order to attract borrowers. The null hypothesis is that lender-affiliated analysts' favorable research reflects honest optimism. However, affiliated analysts can have various incentives for publishing favorable research (or to avoid publishing unfavorable research) to help secure

[4] Similarly, Dass and Massa (2009) argue that the ratio of loan to asset value is related to the amount of firm-specific information captured by lenders.

[5] Potential borrowers may seek out banks that view them favorably because they may expect the cost of securing financing and renegotiating in the future to be lower. Equivalently, borrowers may avoid banks that view them negatively because the perceived costs of dealing with that institution are higher. In a similar vein, Ljungqvist, Marston and Wilhelm (2006, 2009) demonstrate that optimistic recommendations by underwriter-affiliated analysts play an important role in the selection of co-managers of underwriting syndicates, which in turn contributes to selection as a future lead underwriter.

borrowers, including the direct profitability of the loan, career benefits from producing more accurate research given the informational advantage, and the potential for securing additional commercial and investment banking business from the borrower in the future (Drucker and Puri (2005), Bharath, Dahiya, Saunders and Srinivasan (2007)). We find some evidence consistent with this alternative hypothesis. Prior to the loan issuance, lender-affiliated analysts' recommendations are more optimistic relative to those of other analysts. In contrast, we do not find a similar pattern for earnings forecasts. If an analyst truly holds a positive pre-lending view, we would expect it to affect both of these aspects of the analyst's research. On the other hand, prior literature argues that analysts tend to project false optimism through stock recommendations only, which are more subjective and less immediately verifiable than earnings forecasts (Lin and McNichols (1998)).

Subsequent to the loan issuance, the relative optimism in lender-affiliated research recommendations declines, consistent with a bias being induced strategically prior to the loan but reversed after the relationship is secured. Bias reduction after a loan is issued is consistent with a shift in the benefits and costs of maintaining the bias. Analysts likely incur reputational costs from publishing inaccurate biased research, and these costs may even increase for lender-affiliated analysts since they are expected to be privy to private information after a loan is issued. At the same time, the benefit of maintaining biased research can decline after loan issuance since future benefits may be captured at that point.

We entertain two alternative explanations for the post-loan decline in lender-affiliated analysts' recommendations. First, we examine whether borrowers are attracted to banks whose affiliated analysts are objectively optimistic, and that these analysts subsequently downgrade their research based on information gathered during the loan period. The results of our

additional tests do not support this learning explanation. In particular, if the post-loan decline in bias was due to learning we would expect a similar pattern for earnings estimate revisions. However, we do not find that lender-affiliated analysts revise earnings estimates downward after loan issuance on average. We also conduct more focused tests of situations where a lender-affiliated analyst revised both her recommendation and earnings forecast after the bank issued a loan. These tests show no relation between the directions of recommendation and earnings forecast revisions, which one would have expected if both changes reflected new information.[6] Moreover, we find that *downward* recommendation revisions are correlated with improvements in earnings forecast accuracy, consistent with the strategic use of bias in anticipation of a loan-related informational advantage.

The second alternative explanation that we consider is that the post-loan-issuance reduction in recommendation bias is purely mechanical. As discussed above, borrowers gravitate toward lenders whose affiliated analysts issue "Strong Buy" recommendations on their stock, which is the highest possible recommendation given. As such, the distribution of future revisions is truncated from above. To determine whether this drives our bias-reversal result, we test for the impact of lender affiliation on the probability of a downward revision, conditioned on an analyst issuing a pre-loan "Strong Buy" recommendation. Affiliation with a lender continues to predict post-loan-issuance recommendation downgrades in this analysis, suggesting that our finding is not due to a mechanical relation.

An about-turn in optimism can hurt the bank's ability to profit from the recently forged relationship with the borrower via valuable future business opportunities. Therefore, strategically biased analysts could be reluctant to fully downgrade firms as they balance the benefit accruing

[6] We also examine long-term-growth forecasts of earnings instead of quarterly forecasts, and the (non-)result is similar.

from maintaining the bias against the reputation cost of continuing to issue biased research. To examine this tradeoff, we analyze whether the pre-loan recommendation bias disappears subsequent to the loan issuance. We find that the recommendation bias only partially disappears after loans are issued.

Does the proposition that analysts bias their research to attract borrowers represent a conflict of interest that hurts the consumers of this research? We submit that it may not. An analyst's bias may increase the likelihood that the affiliated bank secures a lending mandate, which could result in a direct benefit for clients in the form of more accurate future research. That analysts could rationally trade off research bias to gain access to information is proposed by Lim (2001). However, the analysis of Lim (2001) was grounded in the pre-Reg. FD environment, when equity analysts were regularly granted preferential access to insiders. Our research extends the intuition of Lim (2001) into a post-Reg. FD setting, where one of the main remaining ways analysts can gain access to inside information is by being affiliated with a lender.

This dimension of sell-side research has been largely overlooked in the literature. We therefore propose that lender-affiliated analysts may be "special" in a new sense. Firms can convey private information to delegated monitors (lenders); in turn, lender-affiliated analysts can convey an informed view of borrowers to the market without actually divulging private information. In this way, lender-affiliated analysts can perform the special function of enabling the market to incorporate private information into prices earlier than would have been possible otherwise, while protecting the legal obligations and competitive advantages of borrowing firms by keeping the information private. Our subsequent analyses further support this interpretation of our main results. We find that analysts are more likely to initiate coverage on a firm when

there is a potential or existing lending relationship. In addition, although there was a general decline in analyst coverage in the wake of the Global Research Analyst's Settlement of 2002, the decline was greatly attenuated when the covered firm had a lending relationship with the analyst's bank, suggesting a continuing benefit from providing research in these instances.

We also consider whether the market appreciates the impact of a lender affiliation on analysts. With respect to accuracy improvement, we find that a lender affiliation is associated with a statistically and economically significant increase in two-day Cumulative Abnormal Returns (CARs) upon earnings forecast revisions. There is also some evidence that the market appreciates analysts' pre-loan bias: recommendation changes after an affiliated loan issuance are incrementally informative to the market only when they are upward revisions, consistent with the view that the market attributes downward revisions to a reversal in analyst bias.

There were two significant pieces of regulation directed at analysts during the period of our study. In October 2000, Reg. FD was enacted, restricting executives from selectively disclosing private information. If the lender-affiliation channel of information production persisted beyond this point, the relative accuracy gains may have actually increased after Reg. FD. In December 2002, the Global Research Analysts Settlement was finalized, severely restricting the influence of investment banking divisions on equity research. We find that the accuracy gains for lender-affiliated analysts are similar throughout our sample period, but that post-lending bias reversal ceases after the Global Settlement. The disappearance of this phenomenon after the Global Settlement further supports our intentional bias interpretation since it is unlikely that other explanations would have been affected by these events.

This work is related to Ergungor, Madureira, Nayar and Singh (2009), who also examine the effect of lender-affiliation on the accuracy of equity analysts, although there are important

differences between the two studies. Most importantly, Ergungor et al. (2009) focus exclusively on the relationship between lender-affiliation and analyst accuracy, and do not consider analyst bias in this context. Second, whereas we examine *changes* in both bias and accuracy around loan initiation, the analysis in Ergungor et al. (2009) focuses on the post-loan issuance period. We use fixed-effects at the loan level that allow us to identify the loan issuance as the source of variation and establish that lender-affiliated analysts' superior accuracy reflects information generated in the lending process. Additional contributions of this paper beyond those of Ergungor et al. (2009) include identification of the relation between affiliated analysts' research and forthcoming credit-related events, an analysis of how analyst bias and accuracy are related to the economic magnitude and potential information content of loans, an examination of the impact of important legal developments, and an analysis of how the market interprets lender-affiliated analysts' research. Finally, we find contrasting results to Ergungor et al. (2009) with respect to affiliation with an underwriter, which may be attributed to the greater power of our difference-in-difference analysis around securities issuance. In particular, we do not find significant changes in the forecast accuracy of underwriter-affiliated analysts around issuance of public securities (debt and/or equity). This suggests that, unlike lending relationships, underwriting activities do not generate information that substantially benefits affiliated analysts in a sustained manner.

The rest of the paper is organized as follows. In Section I, we develop our central hypotheses in the backdrop of the existing literature related to the optimism of affiliated equity analysts and the information content of their coverage. In Section II, we discuss and summarize our data. In Section III, we examine the information spillover from lenders to their affiliated analysts. In Section IV, we investigate the pre-loan bias of lender-affiliated analysts and its

reversal after loan issuance. In Section V, we examine the market reaction to affiliated analysts' recommendation and earnings forecast revisions. We discuss the effects of major regulation changes (Reg. FD in 2000 and the Global Settlement in 2002) on pre-loan bias and analyst coverage in Section VI. We conclude in Section VII.

I. Development of Main Hypotheses

Numerous researchers have argued that lenders are "special," and that lending relationships provide banks with access to private information on borrowers (Leland and Pyle (1977); Campbell and Krakaw (1980); Diamond (1984, 1991); Fama (1985); Rajan and Winton (1995)). Recent studies have demonstrated that banks use the information gained through lending to their advantage when trading other securities related to borrowers (see, for example, Acharya and Johnson (2007) for evidence of informed trading in credit default swaps, and Dass and Massa (2009) for informed stock trading). Others find evidence that functional groups in financial conglomerates share information (Ivashina and Sun (2009); Madureira and Underwood (2008); Massa and Rehman (2008); Ergungor, Madureira, Nayar and Singh (2009); and Haushalter and Lowry (2009)). We argue that the lending affiliates of financial institutions have incentives to share information with their affiliated sell-side research analysts, given that the information gained through lending could lead to more accurate research.[7] We expect that lender-affiliated analysts will enjoy an information advantage and will therefore produce more accurate and timely research than other (unaffiliated) analysts on companies to which their banks have loans outstanding, particularly during and after the loan issuance period.

[7] Yu (2007) examines the information advantage of banks during the lending stage and finds evidence that unexpected earnings following the loan deal are negatively related to the loan spreads suggesting that banks are cognizant of future earnings of borrowers and price this into loan spreads.

The next issue we consider is whether the views expressed by sell-side analysts affect borrowers' choices of lenders. Prior literature has provided evidence that the favorableness of underwriter-affiliated analysts' research plays a role in the selection of underwriters for securities offerings. Ljungqvist, Marston and Wilhelm (2009) show that analyst optimism influences the selection of co-managers of underwriting syndicates, and Ljungqvist, Marston and Wilhelm (2006) show that establishing a co-manager relationship contributes to future selection as a lead underwriter.

Similarly, firms seeking private loans may be influenced by the nature of investment recommendations published by a bank's affiliated analysts. When shopping for a lender, executives may be *likely* to seek out loans from banks whose affiliated analysts take a *positive* view of their company. Executives may also expect a favorably inclined bank to work more amicably with them in the future, particularly when renewing the loan at maturity, or if the firm defaults on the loan. Another way to express this argument is that executives are *unlikely* to seek out loans from banks whose affiliated analysts take a *negative* view of their company. The process of securing financing is costly and there are ongoing risks to the borrower related to whether the lender will continue to extend financing or treat them favorably in negotiations the future. The distribution of lender-affiliated research may therefore be truncated from below, resulting in a positive bias in statistical tests.

If borrowers are more likely to take out loans from banks whose affiliated analysts view them favorably, then lender-affiliated analysts may have an incentive to strategically bias their research in order to attract borrowers. This hypothesis is motivated by studies such as Lin and McNichols (1998) and Michaely and Womack (1999) that provide evidence that analysts positively bias their recommendations to secure underwriting business. It is also related to Hong

and Kubik (2003), who explore the relationship between analyst career incentives and overoptimism, and the IPO-related studies by Bradley, Jordan and Ritter (2003, 2008) that document the lack of differential market reaction to recommendations issued by affiliated and unaffiliated analysts.

We expect an analyst's willingness to maintain biased research after a loan is secured to be a function of the costs and benefits of this activity. Once a loan is made, a bank will benefit from both lending profits and preferential access to information, so the benefit of a continued bias is diminished. On the other hand, there are reputational costs from publishing inaccurate biased research, and this cost may actually increase for lender-affiliated analysts after a loan is made since they may be expected to be privy to private information and therefore more accurate. We therefore expect that lender-affiliated analysts will be more likely to downgrade their research after a loan is made if the pre-loan bias was strategically induced in order to secure the lending relationship.

Alternatively, it is possible that lender-affiliated analysts do not intentionally bias their research, but that they are honest (although incorrect) in their assessments, and successful in attracting borrowers nonetheless. We expect that honest optimism would be reflected both in favorable recommendations and earnings estimates. However, for at least two reasons, intentionally induced positive bias is more likely to be associated with favorable recommendations and less likely to be associated with favorable earnings estimates. First, positively biased earnings forecasts may not be attractive to potential borrowers, since they make it less likely the firm will meet or beat expectations, which can be very costly to the firm (see, for example, Skinner and Sloan (2002)). Second, because earnings forecasts are objectively comparable to subsequent earnings releases, the analyst may pay a higher reputational price for

inaccuracy than in the case of more subjective recommendations. Consistent with these points, Lin and McNichols (1998) find evidence of an analyst bias only in recommendations and not in earnings forecasts for SEO firms.

II. Data and Sample Construction

Our sample consists of three main components: (1) a private loan sample, (2) an equity analyst research sample, and (3) lender-analyst affiliations. Our private loan sample comes from the DealScan database provided by the Loan Pricing Corporation (LPC). This database contains information on private loan originations to both public and private companies, including information on the borrower identity, loan maturity, loan syndicate members, and the amount of loan retained by each syndicate member (in many cases). We limit our sample to loans issued to companies with publicly trades stocks. For public companies in our loan sample, we collect from the I/B/E/S database information on the earnings forecasts and stock recommendations issued by equity analysts employed by brokerage houses. Since the focus of our examination is on affiliations between lending institutions and brokerage houses, we hand-match loan syndicate member identity in the DealScan database with brokerage house information in the I/B/E/S database. The estimation period for our analyses is restricted to the 12 year period of 1994–2005, because I/B/E/S database is available only from Q4 1993 and our DealScan database is available only until Q1 2006. Within this sample period, we find 13,618 private loans to U.S. public firms.

<Table I about here>

Table I summarizes our sample. Panel A reports the summary statistics of the private loans in our sample. The typical loan is relatively large with a median size of about $150

million, or 15% of the borrowers' assets, and has a relatively short maturity with a median maturity of about 3 years; however, about a quarter of the loans have maturities of at least 5 years. More than three quarters of the loans are issued by syndicates led by a single lender, but more than half are issued by syndicates with more than one syndicate members. The median number of syndicate members is four: one lead and three additional syndicate members. More importantly for our purpose, about 20.62% of the borrowing firms are covered by equity analysts affiliated with the lead syndicate members.

Panel B of Table I summarizes the characteristics of equity analysts in our sample. Most of these analysts are experienced, with the median analyst having five years of experience. As documented previously in the literature, these analysts tend to provide earnings forecasts that are 1 cent below the actual earnings per share: both the mean and median of forecast bias is negative 1 cent. On the other hand, equity analysts tend to provide positive recommendations for the stocks that they cover. To capture the discrete nature of stock recommendations, we use a discrete variable, "Recommendation Score", to code analysts' stock recommendations in the following order: 1="Strong Buy", 0.75="Buy", 0.5="Hold", 0.25="Sell", and 0="Strong Sell". The median "Recommendation Score" of analyst recommendations in our sample is 0.75, which corresponds to a "Buy" recommendation.

Panels C and D report the summary statistics for "*Potentially Affiliated*" and *"Affiliated"* analysts separately. *Potentially Affiliated* analysts are those affiliated with large commercial or investment banks (which often make loans)[8], while *Affiliated* analysts are those actually affiliated with the loan syndicate lead(s). We designate an analyst's coverage on a borrower as

[8] The list of commercial and investment banks in our sample is reported in Appendix A. While our sample is not a comprehensive list of all lenders operating in the US, the institutions in our sample (and the institutions they acquired) acted as the sole or lead lender for loans amounting to more than 90% of the loan value in the DealScan database during the 1994–2005 period.

Affiliated for the coverage she provides within two years around the loan issuance (one year each before and after). Although *Potentially Affiliated* analysts are similar to the aggregate pool of analysts in terms of experience and the number of firms covered, they demonstrate better forecast accuracy, as evidenced by the higher percentage of their forecast errors being below the median forecast error of all analysts covering the firm in the same quarter. There is also suggestive evidence that *Affiliated* analysts are more optimistic around loan issuance: more than a quarter of affiliated analysts' stock recommendations around loan issuance have a Recommendation Score of 1 ("Strong Buy"), which is a higher proportion than in either the full analyst sample or the subsample of *Potentially Affiliated* analysts. While we do not provide a formal statistical testing of this suggestive evidence, we will explore the potential bias in greater detail in the next section.

As has been documented previously in the literature, we observe two strong time trends related to loan syndication in our sample: an increasing trend in loan syndication (i.e., multiple lenders for each loan) and a decreasing trend in the percentage of loan retained by the syndicate lead. In addition, we also observe an increase over time in the coverage provided by analysts affiliated with the loan syndicate lead (from 11% coverage at the beginning of the sample in 1994 to 47% coverage in 2005). This trend appears to have accelerated starting from 1999, and is likely to be related with the blurring of the lines between investment banks (which tended to provide analyst coverage) and commercial banks (which tended to provide bank loans) with the introduction of the Financial Services Modernization (Gramm-Leach-Bliley) Act in 1999.[9]

III. Lender-Affiliated Analysts' Informational Advantage

[9] The coverage of borrowing firms by lender-affiliated equity analysts increases from only 14% coverage in 1998 to 34% in 2001 (the P-value of the difference using χ-square test is less than 0.0001).

In this section we examine whether equity analysts have access to superior information on firms that borrow from their affiliated lenders. Our main analysis focuses on whether lender-affiliated analysts are better than other analysts at forecasting borrowers' earnings. Supplemental analysis focuses on whether lender-affiliated analysts are more likely to incorporate forthcoming credit-event-related information into their research.

A. *Earnings Forecast Accuracy*

Affiliated lenders may provide equity analysts valuable private information about a borrowing firm that helps the analysts generate more accurate earnings estimates. In order for the causation to run from loan-related private information to superior forecast accuracy, it is important to examine the improvement in lender-affiliated analysts' forecast accuracy subsequent to the deal relative to their accuracy prior to the deal.

As with many other professions, equity analysts are not evaluated in a vacuum: their performance is measured relative to their peers. As such, we focus our analysis on the relative performance changes of lender-affiliated analysts. To measure analysts' performance, we focus on the accuracy of their earnings forecasts relative to the median analyst. We define the indicator variable, *Below-Median Error* that takes the value of 1 if the absolute value of the difference between an earnings forecast and the actual earnings is below the median forecast error of all analysts issuing a forecast for the same firm in the same quarter. In other words, this variable takes the value of 1 if a particular earnings forecast is closer to the reported earnings than at least half of the other earnings forecasts issued for that fiscal quarter. The benchmark period of our analysis is one year prior to the loan. Since we do not know for sure whether information is available to the equity analyst at the time of loan issuance or after loan issuance,

we first examine the relative forecast accuracy during the quarter in which the loan is issued. Since the typical loan matures in about three years it is conceivable that the informational advantage is persistent. Hence, we also examine relative forecast accuracy for up to five years after the loan issuance.

<Table II about here>

Panel A of Table II presents linear probability model (LPM) regressions of *Below-Median Error* on our main affiliation indicator variables: *Potentially Affiliated*, *Pre-Loan*, *During-Loan*, and *Post-Loan*. We repeat all the analysis, where applicable, using the conditional logit model (the non-linear analog of fixed-effects LPM) and find very similar results.[10] For our main result on accuracy improvement (Panel B of Table II) discussed later, we report both the LPM and conditional logit estimates. To control for potential problems that may arise from including stale earnings forecasts, we limit our sample to include only the most recent forecast issued by each analyst in the 90 days preceding a particular quarterly earnings announcement. Model (1) in Panel A includes all such forecasts made by both lender-affiliated and unaffiliated analysts, and shows that analysts associated with large commercial/investment banks (i.e. *Potentially Affiliated*) are more likely to provide forecasts with below median forecast error.[11] Analysts that are actually affiliated with the lead bank in the loan syndicate perform even better after the loan issuance: they are 1.81 percentage points (2.65 percentage points, i.e. 0.84% + 1.81%) more likely to have below median forecast errors relative to analysts affiliated with other large potential lenders (relative to analysts with no affiliation with large potential lenders). This effect corresponds to an improvement of about 6% (9%) relative to the unconditional probability

[10] We report the LPM results because of issues in interpreting interaction variables in non-linear probability models (see Ai and Norton (2003) for related discussions on this issue).

[11] We control for potential time-varying firm characteristics by including firm*quarter fixed effects in model (1).

of having below-median forecast error of about 30 percentage points.[12] It is important to note that lender-affiliated analysts' superior forecast accuracy is not observed prior to the loan issuance.[13]

Model (2) includes forecasts of only analysts affiliated with the lead bank in the loan syndicate. We find that the forecast accuracy of these analysts improves after the loan issuance after controlling for deal fixed effects. The probability of affiliated analysts issuing forecasts with below median forecast errors is 3.59% higher after loan issuance relative to before issuance.[14,15]

While our analysis so far has focused on analysts affiliated with loan syndicate leads, it is plausible that an information advantage is also enjoyed by analysts affiliated with other loan syndicate members. Bankers from other syndicate members may participate directly in evaluating and monitoring borrowers, or lead bankers may share private information with their syndicate partners. Model (3) includes forecasts made by analysts that are affiliated with non-lead syndicate members, and shows very weak evidence that these analysts also improve their forecast accuracy after the loan issuance. This suggests that most of the information generated during the loan approval process and the ongoing monitoring of the borrowers is available only to the loan syndicate leads.

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[12] Analyst forecasts tend to cluster at the consensus forecast. As such, the unconditional average of *Below-Median Error* is only 30.12 percentage point (see Panel B of Table I).

[13] To ensure that the increased probability of lender-affiliated analysts issuing below median forecast doesn't merely reflect increased boldness (i.e., deviation from the median forecast), we also verify that there is a post-loan decline in the probability of lender-affiliated analysts issuing above median post-loan forecasts. Consistent with our interpretation, *unaffiliated analyst*s experience an increased probability of issuing above median forecasts after a loan is issued.

[14] We conduct the accuracy analysis for all other (unaffiliated) analysts. In unreported tests we find that there is no significant improvement in accuracy for these analysts subsequent to loan issuance.

[15] We repeat our analysis using other measures of relative forecast accuracies, such as the scaled accuracy score recommended by Hong and Kubik (2003) and the probability of issuing earnings forecast in the bottom 10% of forecast error and find results that are qualitatively similar. We focus on *Below-Median Error* results to avoid potential issues related to firms with low analyst coverage.

We now turn to the question of whether an information advantage accrues to lender-affiliated analysts only at the time of loan issuance or if access to superior information is ongoing while loans are outstanding. If banks are indeed "special" in their ability to monitor firms through ongoing private information gathering (see Gande and Saunders (2009) for a thorough review of the literature on the specialness of bank loans), we might expect this information advantage to spill over to the affiliated analysts for as long as the loans are outstanding.

To investigate this question, we augment the sample in model (2) of Panel A with forecasts issued by analysts affiliated with loan syndicate leads in the five years following the loan issuance. To capture potential information spillover from ongoing monitoring, we introduce the following indicator variables: *Post-Loan (2-3 Years)*, which takes the value of 1 for coverage provided by affiliated analysts in the second and third years following the loan issuance, and 0 otherwise, and *Post-Loan (4-5 Years)*, which takes the value of 1 for coverage by affiliated analysts in the fourth and fifth years following the loan issuance, and 0 otherwise.[16] The omitted indicator variable in the regression is *Pre-Loan*. If the affiliated analysts' advantage is solely due to the private information generated during the loan approval process, we should expect to see that the improvement in forecast accuracy is limited to the earlier part of the loan term. Model (1) in Panel B of Table II presents the results of this test. We find that the improvement in accuracy is long-lived, as the coefficient for *Post-Loan (2-3 Years)* is slightly weaker than the coefficient for *Post-Loan (1 Year)*, while the coefficient for *Post-Loan (4-5 Years)* is slightly

[16] To be more precise, we assign a value of 1 for *Post-Loan (2-3 Years)* to an earnings forecast if the affiliated bank led a loan syndicate for the firm in the previous 3 years, but not in the previous year. We assign a value of 1 for *Post-Loan (4-5 Years)* to an earnings forecast if the affiliated bank led a loan syndicate for the firm in the previous 5 years, but not in the previous 3 years.

stronger. Both of these coefficients are statistically significant and not different from the coefficient for Post-Loan (1 Year).[17]

To provide another perspective on the economic significance of the effect of analyst affiliations on forecast accuracy, we repeat the analysis in model (1) using a conditional logit model. We find that the affiliated analysts are 17.67% more likely to have a forecast error below the median in the one year following a loan issuance than in the one year before the issuance. The corresponding effect is between 12.98% and 22.30% in the subsequent four years.[18]

These longer-term effects suggest that the advantage enjoyed by affiliated analysts cannot be attributed solely to the information generated in the loan approval process. At least some of their advantage appears to be related to information generated through the loan monitoring process, confirming the specialness of bank lending relationships. In this way, lender-affiliated analysts can harness otherwise private information for the benefit of their clients (and market participants generally, to the extent that this information is incorporated into prices sooner than it would have been otherwise).

B. *Underwriter-Affiliated Analysts' Earnings Forecast Accuracy*

It is possible that underwriter-affiliated analysts also gain access to superior information generated through the underwriting process. In this section we examine whether the improvement in forecast accuracy also obtains for *underwriter*-affiliated analysts by examining changes in accuracy around new public securities issues. We collect data on issuance date and underwriter information for equity (SEO) and public debt issuances from the SDC New Issues Database. We hand-match the equity and debt underwriters to our sample of analysts from

[17] We cannot reject the null that the coefficients for these three indicator variables are identical (P-value = 0.3311)

[18] As the statistical significance levels of these estimates are almost identical to those obtained using the linear probability model, we will use the linear probability models in subsequent analyses.

I/B/E/S, and conduct similar analyses to those presented in Table II but for *underwriter*-affiliated analysts. We analyze equity underwriters and debt underwriters separately, and focus on lead underwriters to aid comparison to the results for lead lender-affiliated analysts.

<Table III about here>

Table III reports the estimates from deal-fixed-effect regressions of earnings forecasts accuracy around security issuance for analysts affiliated with lead equity underwriters (Model (1)) and lead debt underwriters (Model (2)). The changes in forecast accuracy are not statistically significant for both groups of underwriter-affiliated analysts. This suggests that underwriting activities do not generate the same level of private information as private lending activities.

C. *Cross-sectional Analysis of Earnings Forecast Accuracy*

Our results so far indicate that lender-affiliated analysts are likely to provide more precise earnings forecasts. In this section we investigate cross-sectional variations in forecast accuracy. In particular, we examine whether lender-affiliated equity analysts produce more accurate forecasts (1) among borrowers with more information asymmetry and (2) on loans where the lender gets more exclusive access to loan-related information. With respect to the former, we expect information asymmetry to be greater when borrowers' stock returns display more idiosyncratic volatility, when they are smaller, have a lower book/market value or there is more dispersion in analysts' forecasts. With respect to the latter, access to information may be more privileged when the lending syndicate is smaller, the fraction of the loan retained by lead lender is higher, or the loan represents a larger fraction of the borrower's asset. Similarly, Dass and Massa (2009) use loan size as a fraction of the borrower's assets as an indicator of the strength of

a lending relationship, and find that it is related to the amount of firm specific information captured by the lender.

<Table IV about here>

Table IV presents the estimates from linear probability model regressions for subsamples of borrowers (Panel A) and loans (Panel B). The dependent variable in these regressions is *Below-Median Error*, an indicator variable that takes the value of 1 if the forecast error of an analyst's earnings forecast is below the median forecast error for all analyst forecasts for the same firm in the same quarter. A positive coefficient for *Post-Loan* indicates an improvement in affiliated analysts' relative forecast accuracy after the loan is issued. We include deal effects in all regressions.

As reported in Panel A, lender-affiliated analysts improve the most when the borrowers they cover have *high* idiosyncratic stock return volatility (models (1) versus (2)). Our main accuracy improvement result also holds for larger firms (model (3)), but the statistical significance of this result is lost on smaller firms (models (4) and (5)). This may reflect the fact that larger firms tend to be more complex and consequently harder to analyze, even though they may have better external information flow. The loss of statistical significance for the smallest firms may reflect a loss of power due to the low number of observations in this subsample.[19] Lender-affiliated analysts are better at forecasting earnings of both high and low B/M firms, and the difference across these groups is insignificant (models (6) versus (7)). Surprisingly, the improvement in accuracy is only significant when earnings forecasts are less dispersed (models (8) versus (9)). Although counter to our expectations, this may reflect the possibility that lender-

[19] We use the median value of the universe of CRSP-Compustat firms as our cutoff point for the borrower analysis. Most borrowers in our sample fall above the median size, so we divide the above-median sample into quartiles.

affiliated analysts are more likely to leverage an informational advantage to deviate from a strong consensus.

We report the loan subsample analyses in Panel B of Table IV. Consistent with our expectations, we find that accuracy gains are more pronounced when the loans are issued by a sole lender or a small loan syndicate, when a high percentage of the loan is retained by the syndicate lead, and when the loan results in a larger economic stake in the borrower.

D. *Analyst Activity Prior to Credit-Related Events*

If lender-affiliated analysts indeed gain access to private loan-related information, then we would expect them to show particular prescience prior to the release of information about significant changes in borrowers' credit quality. In Table V, we present an analysis of whether lender-related analysts are more likely to revise their expectations of borrowers' prospects downward ahead of credit rating downgrades (Panel A), large positive shocks to credit default swap (CDS) spreads (Panel B), and announcements of large unexpected earnings restatements (Panel C).[20] In each Panel, we present fixed-effects LPM regressions predicting that an analyst issues either an earnings forecast downward (Column 1),[21] or a recommendation downgrade (Column 2) in a given quarter. [22] We model this probability as a function of whether the analyst is affiliated with the firm's lender, and whether a negative credit event occurs in the following quarter.

<Table V about here>

[20] We consider earnings restatements to be credit-related events since they have implications for both expected cashflows and the reliability of information passed to creditors. Consistent with this analysis, Graham, Li and Qiu (2008) provide evidence that banks treat borrowers differently after they restate earnings.

[21] We characterize a downward earnings forecast revision quarter as one where an analyst revises her one year ahead earnings forecast downward, following Hong, Lee and Swaminathan (2003).

[22] A negative shock to a borrower's CDS spread is defined as a quarter in which a firm's maximum weekly CDS contract return is in the top quintile of all firms' maximum weekly CDS returns.

The results are consistent with lender-affiliated analysts having prior access to information relevant to the borrowers' credit quality. Lender-affiliated analysts are more likely to revise both their earnings forecasts and recommendations downward ahead of credit ratings downgrades. They are also more likely to downgrade their recommendations before negative CDS shocks, and they are more likely to lower their earnings forecasts ahead of earnings restatements.[23]

Taken together, the findings that lender-affiliated analysts provide more accurate forecasts of borrowers' earnings and that they are more likely to revise their research downwards ahead of negative credit-related events provide strong evidence of information sharing between the lending and research affiliates of financial institutions.

In addition, in untabulated results[24] we find that analysts at lender-affiliated brokerage houses are more likely to initiate coverage of firms borrowing from their corresponding banks around loan issuance relative to other potentially affiliated analysts. The increased analyst coverage around and, particularly, after loan issuance suggests that analysts perceive benefits to concurrent lending and research on the same companies. The benefits may come in the form of informational gains for the analysts, as discussed in this section; they may also be partially a function of the impact of the analysts' research on a borrower's choice of lender, as discussed in more detail in the next section.

IV. Analysts' Recommendations and Borrowers' Choice of Lender

[23] A possible explanation for why affiliated analysts change recommendations but not earnings forecast ahead of CDS spread shocks is that the shock may indicate greater uncertainty about future cashflows as opposed to an expectation of lower cashflows. While we don't have a strong intuition for why earnings restatements would not be associated with recommendation changes, we would expect a stronger relationship between earnings restatements and one year ahead earnings forecasts given the direct effect of an earnings restatement on a firm's earnings.

[24] Available from the authors upon request.

In this section, we consider what role lender-affiliated analysts' published recommendations can play in terms of attracting borrowers, and whether there is evidence that analysts strategically manipulate their research to influence borrowers.

A. *The Impact of Analysts' Opinions on Borrowers Choices of Lenders*

We start this section by considering whether the favorableness of analysts' research impacts a borrower's choice of lender. As discussed in the hypothesis section, firms seeking loans may choose to borrow from banks that view them favorably, and one important signal may be the banks' published sell-side research. Table VI Panel A presents an analysis of lender-affiliated analysts' recommendations on borrowers both before and after they take out loans. In this panel, we pool lender-affiliated analysts with unaffiliated analysts and include loan fixed effects to control for cross-sectional variations in borrower characteristics. Models (1) and (2) present evidence that equity analysts affiliated with the lead bank tend to be more optimistic about borrowers than other analysts both before and after they take out loans. It therefore appears that borrowers are more likely to choose lenders whose affiliated analysts view them more favorably.

B. *Do Lender-Affiliated Analysts Strategically Bias Their Recommendations to Attract Borrowers?*

We have presented evidence thus far that analysts benefit when they publish research on companies that borrow from their affiliated lenders, and that companies tend to borrow from banks whose affiliated analysts recommend their stock highly. There is considerable prior evidence than analysts have at times purposefully biased their research to attract investment banking business. We test here whether analysts have also biased their research to attract

borrowers. The fact that lender-affiliated analysts tend to initiate coverage of companies around the time they borrow from the affiliated banks may reflect analysts' efforts to curry favor with borrowers. To test this hypothesis further, we analyze changes in analysts' recommendations on borrowers after their affiliated-lenders issue loans to these companies. As discussed in the hypothesis development section, we expect that if analysts strategically bias their research to attract borrowers, they will reduce this bias after loan issuance as the costs and benefits of maintaining the bias will change.

Figure 1 illustrates the properties of lender-affiliated analyst recommendations around loan issuances. It reports the distribution of recommendations around loan issuance for analysts affiliated with the lead or sole loan syndicate member (*Lender*) and other financial institutions with a lending affiliate (*Other Banks*). Prior to a loan being made, lender-affiliated analysts tend to issue more optimistic recommendation with "Strong Buy" making up more than a quarter of their recommendations, relative to about a fifth for analysts affiliated with other banks. While the recommendations of lender-affiliated analysts become less optimistic after the loan is issued (as evidenced by the lower percentage of "Strong Buy" recommendations and the higher percentage of "Hold" recommendations or below), they are still more optimistic relative to the analysts affiliated with other banks.

In Table VI we formally test whether lender-affiliated analysts' recommendations are less optimistic after loan issuance. Model (3) of Panel A reports that the Recommendation Score of lender-affiliated analysts drops by 5.63 percent after loan issuance. As all regressions include deal fixed effects, the negative coefficient for *Post-Loan* captures recommendation downgrades by affiliated analysts after the loan issuance, but does not include recommendations issued for borrowers that were not covered before the loan issuance. This equates to one post-deal

recommendation downgrade for every five deals in our sample (assuming that analysts only downgrade one level at a time).

<Table VI about here>

To capture the possibility that post-deal downgrades are warranted by deterioration in the borrowers' quality, or that they are otherwise consistent with other analysts' views, we use the median Recommendation Score of other analysts covering the firm in the same time period to benchmark the Recommendation Score of affiliated analysts. *Relative Recommendation Score* is calculated as the *Recommendation Score* of affiliated analysts minus the median score of other analysts; as such, a positive value of this variable corresponds to relative optimism of affiliated analysts. Model (4) of Panel A reports a regression in which *Relative Recommendation Score* is the dependent variable. We find that the affiliated analysts' Relative Recommendation Score drops by 1.99 percentage points after loan issuance. This suggests that while some of the post-loan downgrades are consistent with the view of analysts generally, almost half of the downgrade effect is due to affiliated analysts downgrading the borrower more aggressively after loan issuance.

We note, too, that our point estimate in model (4) is an inherently conservative estimate. The pool of other analysts from which we construct the median *Recommendation Score* may include analysts who are affiliated with other lending institutions and likely also have incentives to be overoptimistic prior to the loan issuance (Ljungqvist et al. (2009)). To the extent these other lender-affiliated analysts bias their pre-deal recommendations as their affiliated institutions compete for (and lose) the loan mandate, we should not expect to find a significant coefficient for *Post-Loan*. This evidence is consistent with those banks whose analysts compete most aggressively often winning the mandate.

One possible concern with this analysis is the possibility that a mechanical relationship is driving the results. As shown in Figure 1, firms are more likely to borrow from banks whose affiliated analysts issue 'Strong Buy' recommendations. It may therefore be that we find more downward revisions relative to other analyst due to the fact that lender-affiliated analysts are more constrained on average from issuing higher recommendations. This would cause the distribution of lender-affiliated analyst recommendation changes to be biased downward. To control for this possibility, in untabulated analysis we compare post-loan-issuance recommendation changes of lender-affiliated analysts to those of matched unaffiliated analysts, conditioned on the pre-loan recommendation being a 'Strong Buy'. We find that even after we control for the pre-loan 'Strong Buy' recommendation, lender-affiliated analysts are 40 percent more likely to downgrade firms after a loan is issued (34 percent chance of downgrade for lender-affiliated analysts versus 24 percent chance for other analysts; the difference is statistically significant at 1 percent level).

Finally, although the bias is lessened, we also find that lender-affiliated analysts continue to issue relatively favorable recommendations after loan issuance. There are a number of possible explanations for this finding. It may be that in some cases the pre-loan bias is intentionally induced and in others it reflects an analyst's honest opinion. The partial reduction of bias on average would be consistent with downward adjustment of only the artificially inflated recommendations. Alternatively, it may be that there is a continuing benefit of maintaining an intentional bias. Downgrading a new borrower may hurt a bank's ability to profit from the recently forged relationship via valuable future business opportunities. An analyst may therefore reduce her recommendation when circumstances clearly dictate the action in order to preserve her reputational capital. But she may be reluctant to downgrade when the decision is less

obvious in order to protect the bank's relative advantage over competition in garnering future commercial and investment banking business from the borrower. This characterization is consistent with the previously documented bias for SEO underwriters (Lin and McNichols (1998)), IPO underwriters (Michaely and Womack (1999)), and equity and debt underwriters in general (Ljungqvist, Marston and Wilhelm (2006)).

C. *Comparison to Changes in Earnings Forecasts*

To help determine whether the reduction in recommendations around loan issuance is best characterized as reflecting strategic bias, we also examine changes in lender-affiliated analysts' earnings forecasts around loan issuance. It is not clear whether affiliated analysts would intentionally bias their forecasts. On one hand, a higher earnings estimate conveys an analyst's optimism about the firm's (short-term) prospects, which firm managers would certainly appreciate and can potentially cause the firm to be viewed more favorably by the market at least initially; on the other hand, a *biased* high estimate also provides an artificially higher earnings hurdle, increasing the probability the firm will not meet the expectations. As demonstrated in Bartov, Givoly and Hayn (2002) and Brown and Caylor (2005), this can affect the firm's valuation, and managers with imperfect knowledge of their still-to-be-realized earnings may prefer a lower near-term hurdle for realized results. Analysts, therefore, may or may not have incentives to bias earnings forecasts upward to signal their optimism in the firm. If, however, analysts are earnestly optimistic, we would expect this to be reflected in more favorable earnings forecasts too. Our (unreported) analysis indicates that there no directional change in earnings

forecasts after loan issuance, which suggests that the recommendation bias reversal is not driven by a change in analysts' earnest views.[25]

D. *Comparison to Underwriter-Affiliated Analysts*

In this section we examine whether our bias reversal results also hold for underwriter-affiliated analysts. The literature has documented bias of underwriter-affiliated analysts (Lin and McNichols (1998) for SEO underwriters, Michaely and Womack (1999) for IPO underwriters, and Ljungqvist, Marston and Wilhelm (2006) for equity and debt underwriters in general).

Panel B of Table VI reports the results of deal-fixed-effect regressions of recommendations issued by analysts affiliated with lead equity underwriters around equity issuances (SEO). Panel C reports the results for lead debt underwriters around public debt issuances. Consistent with previous literature, we find that both equity- and debt-underwriter-affiliated analysts in general provide significantly more positive recommendations relative to their peers. In fact, the magnitude of the coefficient estimates in Models (1) and (2) of Panels B and C indicate that the recommendations of underwriter-affiliated analysts are more positive on average than the recommendations issued by lender-affiliated analysts. However, we do not find post-deal bias reversal for underwriter-affiliated analysts. Although Model (3) of both Panels show a general recommendation reversal after a deal, Model (4) shows that there is no downgrade *relative to the recommendations of other analysts.* This suggests that the lending context is different from the underwriting context. If an analyst uses biased recommendations to help a bank attracts a borrower, the relationship is long term and the benefit of maintaining the

[25] The only discernible pattern is that equity analysts are more likely to issue forecast estimates that are equal to the consensus estimate prior to the loan issuance but this tendency is reversed after the loan issuance. This suggests that although unbiased, affiliated analysts are actually bolder after their affiliated banks start a lending relationship with the borrowing firms, which could reflect the flow of private information to the affiliated analysts.

bias is diminished. On the other hand, if bias is used to attract underwriting, the benefit is fleeting and also the cost of reversing the bias could be high since investors who purchased the securities may claim to have been misled.

E. *Learning or Strategic Bias?*

An alternative explanation for the post-loan issuance decline in affiliated analysts recommendations is that analysts are earnestly optimistic and they lower their assessments after a loan is issued based on information learned during the lending process. However, this learning explanation is weakened by the fact that we do not observe a similar pattern in lender-affiliated analysts' earnings forecasts, which would be expected if they have revised their actual view of the company. To further disentangle these two competing explanations we conduct tests that focus on the direct relationship between individual analysts' recommendation changes and changes in the properties of their earnings forecasts. Table VII presents the joint distribution of changes in analysts' relative stock recommendations and changes in the relative bias of their earnings forecasts around loan issuance. If post-loan recommendation changes reflect learning, we expect to find a positive relationship between the direction of an analyst's recommendation change and her forecast changes.

<Table VII about here>

As demonstrated in Panel A, when an analyst has a relative recommendation downgrade after loan issuance, she is actually more likely to have an *increase* in her relative forecast bias (where an increase in bias is measured as the relative change in the percentage of her forecasts that are above the consensus forecast around loan issuance[26]). This is the exact opposite of what

[26] Defining changes in relative forecast bias is complicated by the fact that many forecasts are at the median value. We therefore present two separate analyses based on whether the forecast is (1) above the median or (2) below the

would be expected if the recommendation change reflected learning, and could even be construed as evidence of a different type of analyst bias where pre-lending earnings expectations are reduced to lower the hurdle for the borrowing firm. Panel B presents a similar analysis but characterizing changes in relative forecast accuracy by the change in the percentage of earnings forecasts that are below the consensus forecast. There is no statistical significance in this panel, and the joint distribution does not support the learning explanation.

<Table VIII about here>

In contrast, Table VIII provides evidence consistent with the strategic bias explanation. It presents the joint distribution of changes in analysts' relative stock recommendations and changes in the relative accuracy of their earnings forecasts around loan issuance. If pre-loan recommendation bias is used more aggressively when there is more opportunity for analysts to gain an informational advantage, we would expect a negative relationship between recommendation changes and forecast accuracy improvement.

Panel A of Table VIII shows that the difference in the percentage of new earnings forecasts that are more accurate versus those that are less accurate is higher among analysts who issue a post-loan relative recommendation downgrade than those who issue a relative upgrade. This indicates that a pre-loan positive recommendation bias was more likely to be reversed (and therefore more likely to have been intentionally induced) when that analyst had an increase in post-loan earnings forecast accuracy. Panel B shows that the same relationship does not hold for other bank-affiliated analysts whose bank did not lead the loan syndicate; suggesting that the result we obtain in Panel A is not driven by a mechanical relationship or by the fact that the

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median. An analyst is categorized as having an increased post-lending bias if we observe (1) an *increase* in the percentage of her forecasts that are above the median (relative to her percentage before the loan issuance; Panel A), or (2) a *decrease* in the percentage of her forecasts that are below the median (Panel B).

borrower took out a bank loan generally. When coupled with the results discrediting the learning explanation in Table VII, these results suggest that analysts often appreciated the fact that they would receive better information about a company if their affiliated lender issued the company a loan, and that at times they intentionally biased their pre-lending recommendations upward to help secure the lending relationship.

The strategic use of research bias to attract other investment banking business has typically been thought to represent a conflict of interests since there is no apparent benefit that accrues to the consumers of the biased research. However, in the present case the analysts' pre-loan bias may contribute to the accuracy of their post-loan accuracy, if they have access to private information through the lending relationship. Since this improvement will accrue to the longer-term benefit of their clients, any potential conflicts of interest may be offset. This perspective is consistent with the intuition of Lim (2001), who proposes a theory of rational forecast bias by equity analysts in order to gain access to private information from a firm's management. If private information is forthcoming to the affiliated-analysts over the life of a lending relationship, then one could reason that any short-term pre-loan bias may be a cost worth paying if it can impact the probability of attracting the borrower (especially given that market participants may adjust for this bias in the first place).

V. The Market Reaction to Lender-Affiliated Analysts' Research

We turn now to the question whether the market recognizes the superior accuracy of lender-affiliated analysts, and if it accounts for lender-affiliated analyst recommendation bias. We address this question by comparing the differential market reaction to the issuance of stock recommendations and earnings forecasts by lender-affiliated analysts versus unaffiliated

analysts. We focus on the one-year period following each loan issuance and limit our samples to the following: (1) recommendations that are different from an analyst's previous recommendation on the firm or (2) earnings forecasts that are different from the median forecast outstanding on the firm's earnings.

We regress the 2-day CRSP size-decile-adjusted cumulative abnormal return around these events onto *Lead Lender*, a dummy variable indicating that the revision was made by an analyst associated with the lead or sole lender on an outstanding loan to the borrower. To control for the information content of the revision, we include the following control variables for the recommendation regressions: *Rec. Change 2 Levels* (*3 Levels*) [*4 Levels*], which are dummy variables indicating a recommendation change of two (three) [four] levels in either direction. In the earnings forecast regressions we include |*Scaled Forecast Revision*|, the absolute value of the change in the analyst's earnings forecast relative to the median forecast scaled by beginning of month stock price. The recommendation regressions are reported in Table IX, Panel A, and the forecast regressions are reported in Panel B.

<Table IX about here>

In model (1) of each panel, we combine both upward and downward revisions. We use the original CAR as the dependent variable when there is an upward revision and multiply the CAR by negative one when there is a downward revision so that they are comparable in direction. If revisions issued by lender-affiliated analysts are perceived to be more informative, we expect to see that the market responds in a more extreme manner to these revisions. In Panel A, we document that recommendation revisions by affiliated analysts result in 57 bps larger market reaction (which is almost a quarter of the unconditional CAR of about 2.43%). In

economic terms, the elevated reaction to affiliated analysts' revision is larger in magnitude than the marginal effect of a 2-step revision (e.g., from "Hold" to "Strong Buy").

We analyze recommendation upgrades and downgrades separately in models (2) and (3). We find that the market impact of lender-affiliated analysts' recommendation revisions is driven by a stronger response to recommendation upgrades (71 bps), and that lender-affiliation does not have a significant impact on the market response to a downgrade. This suggests the market at least partially appreciates the biased nature of the pre-lending recommendation, such that an upgrade is unexpected and is incrementally informative. However, to conclude confidently that the market fully incorporates the bias of lender-affiliated analysts, we would need to have observed a muted response to downgrades by these analysts.

Panel B of Table IX presents an analysis of the market response to earnings forecast revisions. The market response is greater when the forecast revision is made by a lender-affiliated analyst, consistent with the market appreciating the accuracy. This elevated reaction is similar for upward and downward revisions as reported in models (2) and (3), which suggests the market perceives neither bias in earnings forecasts nor a directional impact of the analysts' post-loan learning.

VI. The Impact of Regulatory Changes on Lender-Affiliated Equity Analysts

The equity research industry was impacted by three major policy changes during our sample period, including the introduction of the Gramm-Leach-Bliley Financial Services Modernization Act in 1999 ("GLB Act"), the introduction of Regulation Fair Disclosure in October, 2000 ("Regulation FD"), and the Global Research Analyst Settlement published in December 2002 and the related regulatory changes ("Global Settlement").

The GLB Act repealed the provisions in the Glass-Steagall Act of 1933 that prohibited the integration of commercial and investment banking practice within one financial institution, and therefore blurred the lines between investment banks (which tended to provide analyst coverage) and commercial banks (which tended to provide loans). This resulted in a steep increase in the coverage of borrowing firms by lender-affiliated equity analysts: from only 14% coverage in 1998 to 34% in 2001. While it would have been ideal to analyze the GLB Act's impact on the information advantage of lender-affiliated analysts, the implementation of this regulation was followed closely by the introduction of Regulation FD.

In October 2000, the U.S. Securities and Exchange Commission (SEC) adopted Regulation FD, which prohibited publicly-traded U.S. companies from selectively disclosing material non-public information to securities markets professionals ahead of general public disclosure. While Regulation FD sought to stamp out selective disclosure, it provides an explicit exclusion for information shared with banks and credit rating agencies (Jorion et al. (2005), Yu (2007)). As Yu (2007) notes, banks are exempted from Regulation FD as contractual parties. If information is shared within financial institutions, regulation FD may not have reduced the informational advantage lender-affiliated equity analysts enjoy after loan issuance. On the contrary, lender-affiliated analysts' advantage may be more pronounced after Regulation FD given that their competition may have been put at a relative disadvantage.

The Global Settlement and related regulatory changes provide legal parameters for the separation of equity underwriting and equity research. For example, equity analysts may not issue research reports regarding an IPO (SEO) issuer for which the affiliated bank acts as the underwriter within 40 (10) calendar days following the effective date of the offering. In addition, investment banks are required to put extensive information barriers between the

research and underwriting departments and to refrain from having compensation policies in place for researchers that include incentives based on the level of underwriting activity generated. Importantly, these restrictions were targeted specifically at the conflicts of interest unearthed in the investment banking industry, and neither contemplates, nor to our understanding, directly applies to relationships between lenders and research departments. As with Regulation FD, it may therefore be the case that the Global Settlement and related regulatory changes led to a further relative advantage for lender-affiliated borrowers in the form of a legally-imposed disadvantage on their competitors.

A. *The Decline in Analyst Coverage after the Global Settlement*

The number of firms that receive research coverage has dropped since the Global Settlement (Kadan, Madureira, Wang and Zach (2009)). This trend is arguably a function of the reduced informational advantage gained by many analysts through affiliated underwriting divisions. Alternatively, it might be that the research itself was never economically viable except as a marketing tool for attracting underwriting mandates. If the information advantage is persistent after the Global Settlement for lender-affiliated analysts, we would not expect to see the same decline in analyst coverage when the firm has a lending relationship with the affiliated bank. Similarly, the potential to gain access to loan-related private information may also affect the coverage decisions of analysts affiliated with other large banks. We investigate these potential coverage choices by examining coverage reduction as a function of analyst lender affiliation and whether or not a firm has a history of using private loans.

<Table X about here>

Table X reports the decline in analyst coverage around the Global Settlement in 2002. We start with annual samples of firms covered by analysts whose brokerage houses are affiliated with large commercial/investment banks during the six-year period of 1999–2004. For each brokerage house, we identify two sets of firms, including those that have: (1) borrowed from a loan syndicate that is led by the bank affiliated with that brokerage house in the preceding five-year period (1994–1998) or (2) borrowed from other any other bank in the same period. We refer to the first group as "Affiliated Borrowers" and the second group as "Non-Affiliated Borrowers". Our analysis focuses on the probability of reduction in analyst coverage as a function of these brokerage house affiliations. In Model (1), the dependent variable is the probability of an analyst dropping coverage on a particular firm in year *t+1* conditional on providing coverage on that firm in year *t*. The independent variables include an indicator variable for "Affiliated Borrowers" and firm fixed effects. We find that the probability of dropping coverage is negatively related to lender-affiliation, indicating that affiliated analysts are more likely to continue providing coverage on borrowers.

In Model (2), we interact an indicator variable for "Post-Global-Settlement" (that takes a value of 1 for years after 2002, and 0 otherwise) with the lender-affiliation dummy. For the full sample of firms covered by analysts, we find that analysts are more likely to drop coverage after the Global Settlement (consistent with Kadan et al (2009)). More importantly for our analysis, we find that this effect is significantly reduced when an analyst's brokerage house is affiliated with the borrower. Although we include firm fixed effects in our analysis, there may still be a concern that borrowers are somehow different from other firms. To alleviate this concern, we restrict the sample in Model (3) to "borrowers", which are firms that borrowed from at least one lender (although not necessarily the affiliated lender) in the period 1994–1998. We find that

affiliated analysts are less likely to drop coverage on borrowers both before and after the Global Settlement. In summary, we find evidence consistent with lender-affiliated equity analysts maintaining coverage on borrowing firms, which we suggest reflects the informational advantage these analysts enjoy.

B. *The Effect of Regulation FD and the Global Settlement on Affiliated Analysts' Bias and Accuracy*

To examine the impacts of regulatory changes on lender-affiliated analysts, we divide our sample into three sub-periods: (1) the pre-Reg FD period (2000 and before), (2) between Reg FD and the Global Settlement (2001–2002), and (3) the post-Global Settlement period (2003 and after). We interact indicator variables capturing these different periods with our variables of interest. In Table XI, we focus on forecast accuracy improvement in models (1) and (2), and recommendation bias in models (3) and (4).

<Table XI about here>

The dependent variable in models (1) and (2) is *Below-Median Error*. This replicates our main analysis of affiliated analysts' accuracy improvement in Table II, Panel A, Model (2), with the inclusion of interactions variables described above. None of the interaction variables are significant, suggesting that lender-affiliated analysts' informational advantage persists throughout our sample period. In models (3) and (4), the dependent variable is *Relative Recommendation Score.* This analysis replicates our analysis of affiliated analysts' recommendation bias in Table VI, Panel A, Model (4), with the inclusion of interaction variables. While we do not find any significant change in affiliated analysts' loan-related bias reduction after the introduction of Reg FD, we find it is significantly curtailed after the Global

Settlement. This suggests that the Global Settlement has impacted lender-affiliated analyst bias as well, even though bias for this purpose was not explicitly targeted by the regulations.

VII. Conclusion

In this paper, we examine the intersection of equity research and bank lending. We find that analysts at brokerage houses that are part of larger financial institutions with subsidiaries who make loans are better at forecasting borrowers' earnings after their affiliated banks issue private loans to those companies. The improvement in accuracy varies with firm and loan characteristics that suggest a greater informational advantage. In contrast, we do not observe a similar accuracy gain for analysts affiliated with investment banks that underwrite public securities. Lender-affiliated analysts are also more likely to anticipate borrowers' forthcoming negative credit-related events in their research.

We find that firms tend to borrow from banks whose affiliated analysts issue favorable recommendations on their stocks. We argue that the potential for obtaining important firm-specific private information from affiliate banks could incentivize analysts to induce a favorable upward bias in recommendations before loan deals. Consistent with this hypothesis, recommendations published by lender-affiliated analysts are biased upwards before loan issuance, and are soon reversed after loan issuance, when the benefits of maintaining the bias are reduced. Similar patterns do not hold for earnings estimates, suggesting that the pattern is not driven by earnest optimism or a revision in analysts' views based on information learned in the lending process.

For consumers of this research, this creates a tradeoff between the cost of recommendation bias before a loan is made, and the ensuing (sustained) benefit of accuracy

improvement after loan issuance. Because the pre-loan bias can potentially help attract borrowers, we propose that these two aspects of lender-affiliated analysts' research, i.e. recommendation bias and forecast accuracy, represent two sides of the same coin.

One interpretation of our evidence is that the exclusion provided to commercial banks from Reg. FD is consistent with investor welfare. As delegated monitors, banks play a special role in alleviating information asymmetry. Subsequent to Reg. FD, one channel that has escaped regulation, that is bank access to private loan-related information, may have allowed for information transmission to investors via lender-affiliated analysts. Our evidence also provides a perspective consistent with differential treatment for lender-affiliated analysts than for analysts with an underwriter affiliation only, whose internal communications are greatly restricted following the Global Research Analysts Settlement of 2002. Although analyst bias has been apparent in both instances, the corresponding increase in accuracy for lender-affiliated analysts point to a possible net gain for investors from this practice.

However, we also find that lender-affiliated analysts' pre-loan bias has declined since the Global Research Analysts Settlement. It is possible that financial institutions have an appreciation for the benefits of lender-affiliated research that is not fully shared by borrowing firms. If this is the case, any decline in analyst bias that was driven by caution as opposed to economic fundamentals may have lessened borrowers' inclination to take out loans from banks with affiliated lenders, and therefore could have negatively impacted the value these analysts bring to the marketplace.

Finally, although we refrain from adopting a particular view on the issue, we note that policymakers may consider the "special" advantage of lender-affiliated analysts in a negative light. Reg. FD was implemented in response to complaints that analysts associated with larger

brokerage houses gained preferential access to information, unfairly disadvantaging smaller investors. If the information advantage of lender-affiliated analysts is available only to a subset of investors this advantage may be viewed similarly. If one takes this perspective, our results may point toward regulations that ensure equal investor access to lender-affiliated analyst reports, or could be used to support a ban on lenders sharing information with affiliated analysts. Our research indicates, however, that that the market quickly incorporates the information content of lender-affiliated analysts' research into stock prices. This suggests that even investors without direct access to the research still benefit from prices that are more efficient on average. Any restrictive policy response may reduce this benefit for investors.

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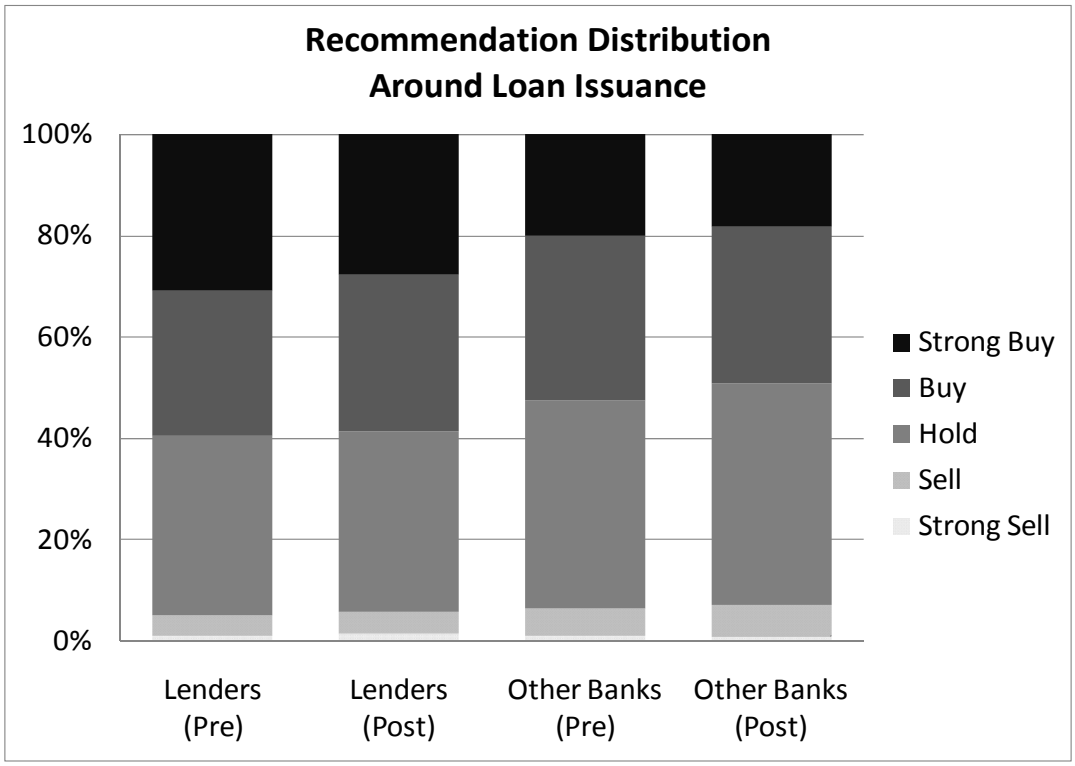
Figure 1: Recommendations of Affiliated Analysts around Loan Issuance



This figure reports the distribution of recommendations around loan issuance for equity research analysts affiliated with large investment/commercial banks (in Appendix Table A). These analysts are categorized into two groups: (1) those affiliated with the institution that is the lead (or sole) loan syndicate member (*Lenders*), and (2) those affiliated with other institutions (*Other Banks*). For each analyst-loan pair, we include the last stock recommendation issued by the analyst for the borrowing firm within the year prior to the loan issuance (*Pre*) and the first recommendation within the year subsequent to the loan issuance (*Post*).

Table I: Summary Statistics

This table summarizes the characteristics of our sample of private loans and equity analysts. Our loan sample includes all bank loans issued to publicly listed firms in the 1994–2005 period as reported in the DealScan database. Our equity analyst sample includes quarterly earnings forecasts and stock recommendations issued by analysts included in the I/B/E/S database. The earnings forecast sample is limited to the most recent earnings forecast issued by each brokerage house within 90 days preceding the corresponding quarterly earnings announcement. "*Potentially Affiliated*" analysts refer to all analysts affiliated with large financial institutions (banks) listed in Appendix Table A. "*Affiliated*" analysts refer to analysts covering a borrowing firm who are affiliated with the lead bank in the loan syndicate within two years around the loan issuance (one year each before and after). *Analyst Tenure* is the number of quarters since the analyst's first appearance on I/B/E/S. *Forecast Bias* is the earnings forecast issued by an analyst minus the actual earnings per share. *Forecast Error* is the absolute value of the difference between a forecast and the actual earnings per share. *Recommendation Score* is coded as a number between 0 and 1 (0="Strong Sell", 0.25="Sell", 0.5="Hold", 0.75="Buy", and 1="Strong Buy").

	Mean	*Std. Dev.*	*5th Pctile*	*25th Pctile*	*Median*	*75th Pctile*	*95th Pctile*
Panel A. Loan and Borrower Characteristics (N=13,618)							
Loan Size (in $ million)	418	959	6	45	150	400	1,650
Loan Size / Firm Asset	0.21	0.19	0.01	0.06	0.15	0.31	0.62
Borrower's Asset Size (in $ million)	13,259	70,496	36	233	958	4,361	35,014
Loan Maturity (in months)	45.02	31.08	12	18	37	60	96
Number of Loan Tranches	1.38	0.74	1	1	1	2	3
# of Loan Syndicate Lead(s)	1.18	0.69	1	1	1	1	2
Fraction of Loan Retained by Each Lead (%)	62.93	39.72	6.81	19.15	100	100	100
% of Loan with Affiliated Analyst Coverage	20.62						
# of Non-Lead Loan Syndicate Member(s)	6.08	9.29	0	0	3	8	22
Panel B. Analyst Characteristics (at Forecast Issuance, N=954,478)							
# of Firms Covered by Analyst	11.88	19.60	2	6	9	14	25
Analyst Tenure (in Quarters)	24.58	18.81	2	9	20	36	62
Forecast Bias (Forecast-Actual)	-0.01	0.27	-0.15	-0.03	-0.01	0.01	0.13
Forecast Error |Forecast-Actual|	0.07	0.26	0.00	0.01	0.02	0.06	0.24
Fraction of Forecast Error Below Median (%)	30.12	14.25	7.74	21.31	29.58	38.19	52.38
Recommendation Score; N=487,545	0.68	0.24	0.25	0.5	0.75	0.75	1
Panel C. "Potentially Affiliated" Analyst Characteristics (at Forecast Issuance, N=528,301)							
# of Firms Covered by Analyst	12.34	16.64	2	6	10	14	25
Analyst Tenure (in Quarters)	24.28	18.45	2	10	20	35	61
Forecast Bias (Forecast-Actual)	0.00	0.31	-0.16	-0.03	-0.01	0.01	0.16
Forecast Error |Forecast-Actual|	0.08	0.30	0.00	0.01	0.02	0.06	0.28
Fraction of Forecast Error Below Median (%)	31.82	13.92	10.21	23.24	31.38	39.82	53.67
Recommendation Score; N=207,603	0.66	0.23	0.25	0.5	0.75	0.75	1
Panel D. "Affiliated" Analyst Characteristics (at Forecast Issuance, N=16,071)							
# of Firms Covered by Analyst	11.09	15.15	3	6	10	13	20
Analyst Tenure (in Quarters)	25.20	18.97	3	10	21	36	64
Forecast Bias (Forecast-Actual)	-0.01	0.21	-0.15	-0.04	-0.01	0.00	0.10
Forecast Error |Forecast-Actual|	0.06	0.20	0.00	0.01	0.02	0.06	0.21
Fraction of Forecast Error Below Median (%)	31.45	13.52	10.42	23.03	30.89	39.29	53.57
Recommendation Score; N=10,383	0.67	0.25	0.25	0.5	0.75	1	1

Table II: The Accuracy Improvement of Lender-Affiliated Analysts' Earnings Forecasts

This table reports the estimates of fixed-effect regression analysis of the accuracy of affiliated analysts' earnings forecasts. The dependent variable in all regressions is a forecast accuracy proxy, "*Below-Median Error*", an indicator variable that takes the value of 1 if the forecast error of an analyst's earnings forecast is below the median forecast error for all analyst forecasts for the same firm in the same fiscal quarter, and 0 otherwise. Forecast error is defined as the absolute value of the difference between an earnings forecast and the actual earnings per share. In model (1) of Panel A, we include all earnings forecasts that are the most recent forecast issued by each brokerage house within 90 days preceding the corresponding quarterly earnings announcement. The independent variables for this regression include the following indicator variables. *Potentially Affiliated* takes the value of 1 for coverage by analysts associated with large commercial/investment banks, and 0 otherwise. *Pre-Loan (During-Loan) [Post-Loan]* takes the value of 1 for coverage by analysts associated with the lead loan syndicate member one year before (during) [one year after] the quarter of the loan issuance, and 0 otherwise. In models (2) and (3) of Panel A, we limit our analysis to the nine-quarter period around a loan issuance: four quarters prior to the issuance, the issuance quarter, and four quarters subsequent to the issuance. As such, the omitted indicator variable in these regressions is *Pre-Loan.* In Panel B, we expand the analysis to include the 25-quarter period around a loan issuance: four quarters prior to the issuance, the issuance quarter, and 20 quarters subsequent to the issuance. We utilize the following additional indicator variables: *Post-Loan (2-3 Years)* takes the value of 1 for coverage by analysts associated with the lead bank in the second and third years following the loan issuance quarter, and 0 otherwise; and *Post-Loan (4-5 Years)* takes the value of 1 for coverage by analysts associated with the lead bank in the fourth and fifth years following the loan issuance quarter, and 0 otherwise. All estimates are reported in percentage points. The t-statistics reported in parentheses are calculated using standard errors clustered at the analyst level. Statistical significance at the 1%, 5% and 10% levels are denoted by ***, **, and *, respectively.

Panel A. Accuracy Improvement around Issuance

Analyst Sample:	*All*	*Affiliated with Lead*	*Affiliated with Member*
Model:	(1)	(2)	(3)
Dependent Variable: Below-Median Error			
Potentially Affiliated	0.84***		
	(4.34)		
Pre-Loan	-0.61		
	(-0.69)		
During-Loan	0.13	1.05	-0.52
	(0.17)	(0.82)	(-0.64)
Post-Loan	1.81**	3.59***	0.92
	(2.41)	(2.76)	(1.19)
Fixed Effect	Borrower*Qtr.	Deal	Deal
N (Analyst Clusters)	10,546	1,003	1,901
Obs.	868,585	12,998	34,697
R^2	0.14	0.18	0.17

Panel B. Accuracy Improvement after Issuance

	Linear Probability Model (Parameter Estimate)	*Conditional Logit (Odds Ratio)*
Model:	*(1)*	*(2)*
Dependent Variable: Below-Median Error		
During-Loan	1.05	5.25
	(0.85)	(0.92)
Post-Loan (1 Year)	3.69***	17.67***
	(3.01)	(3.08)
Post-Loan (2-3 Years)	2.68**	12.98**
	(2.18)	(2.09)
Post-Loan (4-5 Years)	4.62**	22.30**
	(2.54)	(2.50)
Fixed Effect	Deal	Deal
N (Analyst Cluster)	1,270	
Obs.	21,730	19,600
R^2	0.16	

Table III: Analysis of Underwriter-Affiliated Analysts around Issuance of Public Securities

This table reports the results of fixed-effect regression analysis of underwriter-affiliated analysts' earnings forecast accuracy around equity issuance (SEO) or public debt issuance. The dependent variable in each regression is a forecast accuracy proxy, "*Below-Median Error*", an indicator variable that takes the value of 1 if the forecast error of an analyst's earnings forecast is below the median forecast error for all analyst forecasts for the firm's fiscal quarter, and 0 otherwise. Forecast error is defined as the absolute value of the difference between an earnings forecast and the reported earnings per share. In this analysis, we limit our sample to the nine-quarter period around an equity or public debt issuance: four quarters prior to the issuance (*Pre-Issuance)*, the issuance quarter (*During-Issuance*), and four quarters subsequent to the issuance (*Post-Issuance*). As such, the omitted indicator variable in these regressions is *Pre-Issuance.* All estimates are reported in percentage points. The t-statistics reported in parentheses are calculated using standard errors clustered at the analyst level. Statistical significance at the 1%, 5% and 10% levels are denoted by ***, **, and *, respectively.

Analyst Affiliation:	*Lead Equity Underwriters*	*Lead Debt Underwriters*
Dependent Variable:	*Below-Median Error*	*Below-Median Error*
Model:	*(1)*	*(2)*
During-Issuance	0.85	1.04
	(0.47)	(0.66)
Post-Issuance	2.30	0.72
	(1.54)	(0.48)
Fixed Effect	Deal	Deal
Cluster	Analyst	Analyst
N (Clusters)	1,589	1,080
Obs	10,940	13,074
R^2	0.33	0.33

Table IV: Subsample Analyses of Affiliated Analysts' Accuracy

This table reports the parameter estimates of subsample analyses of affiliated analysts' improvement in accuracy. We limit our analysis to the following nine-quarter period around loan issuance: four quarters prior to a loan issuance, the loan issuance quarter, and four quarters subsequent to the loan issuance. The dependent variable in all regressions is *Below-Median Error*. *Forecast Error* is defined as the absolute value of the difference between an earnings forecast and the reported earnings per share. If an analyst forecast's error is below the median forecast error of all analysts covering the firm in the same quarter, the forecast is assigned a *Below-Median Error* value of 1. Otherwise, the forecast is assigned a value of 0. The independent variables for each regression include the following indicator variables. *During-Loan* takes the value of 1 for coverage by analysts associated with the lead bank in the quarter of the loan issuance (or between consecutive loan issuances led by the same lender in the same year), and 0 otherwise. *Post-Loan* takes the value of 1 for coverage by analysts associated with the lead bank one year after the loan issuance quarter, and 0 otherwise. Panel A reports the estimates from deal-fixed-effect regressions of affiliated analyst forecasts categorized based on borrower characteristics. Panel B reports the subsample analysis based on loan characteristics. All estimates are reported in percentage points. The t-statistics reported in parentheses are calculated using standard errors that are clustered at the analyst level. Statistical significance at the 1%, 5% and 10% levels are denoted by ***, **, and *, respectively.

Panel A. Borrower Characteristics

	Idiosyncratic Volatility		**Firm Size**			**B/M**		**Forecast Dispersion/ Price**	
Borrower Sample:	*Above Median*	*Below Med.*	*Largest Quartile*	*3rd Qrtl.*	*Below Median*	*Above Median*	*Below Med.*	*Above Median*	*Below Med.*
Model:	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
Dep. Variable: Below Median Error									
During-Loan	1.87	0.68	1.06	0.47	3.58	0.63	1.81	3.17	0.03
	(0.75)	(0.41)	(0.69)	(0.15)	(0.55)	(0.38)	(0.75)	(1.20)	(0.02)
Post-Loan	5.15**	2.68	3.87**	2.09	7.77	3.34**	4.30*	0.75	3.88**
	(2.27)	(1.52)	(2.28)	(0.76)	(1.29)	(1.96)	(1.80)	(0.29	(2.22)
Fixed Effect	Deal		Deal			Deal		Deal	
Obs.	3,697	7,948	8,804	2,291	571	7,599	4,055	3,095	7,279
R^2	0.19	0.17	0.17	0.19	0.22	0.17	0.18	0.18	0.17

Panel B. Loan Characteristics

	Number of Lenders				**Tranches**		**Fraction Retained**			**Loan Size /Asset**	**Loan Retained /Asset**
Loan Sample:	*One*	*≤3*	*4-12*	*>12*	*One*	*Many (>1)*	*No Info*	*Low*	*High (≥20%)*	*Large (>30%)*	*Large (>6%)*
Model:	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*
Dep. Variable: Below Median Error											
During-Loan	-0.26	1.84	1.56	0.18	1.11	0.88	2.04	2.34	-1.64	0.79	2.94
	(-0.05)	(0.66)	(0.73)	(0.09)	(0.69)	(0.43)	(1.11)	(0.71)	(-0.77)	(0.19)	(0.56)
Post-Loan	5.28	4.29*	3.86*	2.91	4.41***	2.15	2.45	3.89	5.68**	6.24*	11.14***
	(1.28)	(1.73)	(1.78)	(1.43)	(2.65)	(1.08)	(1.39)	(1.32)	(2.25)	(1.78)	(2.66)
Fixed Effect	Deal				Deal		Deal			Deal	Deal
Obs.	1,208	2,976	4,922	5,100	8,132	4,866	7,227	3,502	2,269	2,541	1,409
R^2	0.22	0.21	0.19	0.16	0.19	0.17	0.18	0.15	0.22	0.30	0.29

Table V: Analyst Revisions in Anticipation of Negative Corporate Events

This table reports fixed-effect regressions of analysts' revisions of recommendations and earnings forecasts ahead of credit-related events. We include revisions in the quarter preceding events that occur in the three-year period after issuances of loans. The events include revisions of credit ratings (Panel A), shocks to credit default swap prices (Panel B), and earnings restatements (Panel C). The dependent variable in Model (1) of each panel is *Downward Forecast Revision*, an indicator variable that is coded as 1if the analyst issues a downward revision on her earning forecast and 0 if the analyst issues a reiteration or a positive revision. We use quarterly revisions in annual earnings forecasts as in Hong, Lee, and Swaminathan (2003). The dependent variable in Model (2) is *Recommendation Downgrade*, an indicator variable that is coded as 1if the analyst downgrades her recommendation on the stock and 0 otherwise, conditional on the analyst issuing a new recommendation. All regressions include *Affiliated,* an indicator variable that takes the value of 1 for coverage by analysts associated with the lead lender, and 0 otherwise. Panel A regressions include an indicator variable for *Credit Rating Downgrade*. Panel B regressions include *CDS Shock*, an indicator variable for the quarter immediately preceding a quarter in which the maximum weekly CDS returns in the highest quartile (i.e., the highest increase in default probability). Panel C regressions include *Negative Restatement*, an indicator variable for earnings restatements with 3-day CARs in the lowest quartile. Each regression includes fixed-effects for the specific event. The t-statistics are reported in parentheses. Statistical significance at the 1%, 5% and 10% levels are denoted by ***, **, and *, respectively.

Panel A. Revisions ahead of Credit Rating Revisions

Dependent Variable:	*Downward Forecast Revision*	*Recommendation Downgrade*
Model:	*(1)*	*(2)*
Affiliated	5.66%***	-3.20%
	(3.15)	(-1.06)
Affiliated Credit Rating Downgrade*	5.40%**	6.85%*
	(2.34)	(1.75)
Fixed Effect	Firm * Rating Revision	Firm * Rating Revision
Obs.	23,008	6,747
R^2	0.38	0.20

Panel B. Revisions ahead of Credit Default Swap Shocks

Dependent Variable:	*Downward Forecast Revision*	*Recommendation Downgrade*
Model:	*(1)*	*(2)*
Affiliated	5.26%***	2.39%
	(8.90)	(1.26)
Affiliated CDS Shock*	0.53%	8.17%**
	(0.45)	(2.20)
Fixed Effect	Firm * CDS shock	Firm * CDS shock
Obs.	70,489	13,910
R^2	0.41	0.31

Panel C. Revisions ahead of Earnings Restatements

Dependent Variable:	*Downward Forecast Revision*	*Recommendation Downgrade*
Model:	*(1)*	*(2)*
Affiliated	2.83%	6.35%
	(1.07)	(1.35)
Affiliated Negative Restatement*	16.17%**	-8.56%
	(2.44)	(-0.79)
Fixed Effect	Firm * Restatement	Firm * Restatement
Obs.	5.416	2,133
R^2	0.41	0.19

Table VI: Analysts Recommendations around Loan Issuance, Equity Underwriting and Debt Underwriting

This table reports the parameter estimates from fixed-effect regression analyses of analysts' stock recommendations. We limit our analysis to the two-year period around issuances of loans (or public securities): one year preceding the issuance and one year subsequent to the issuance. In each panel the dependent variable in Models (1), (2), and (3) is *Recommendation Score*, a variable that is coded as a number between 0 and 1 (0="Strong Sell", 0.25="Sell", 0.5="Hold", 0.75="Buy", and 1="Strong Buy"). The dependent variable in Model (4) is *Relative Recommendation Score*, the difference between an affiliated analyst's *Recommendation Score* and the median *Recommendation Score* of other analysts covering the firm during the same timeframe. Panel A reports the analysis of lender-affiliated analysts' stock recommendations around loan issuances. Panel B (C) report the analysis of underwriter-affiliated analysts' stock recommendations around public equity (debt) issuances. The independent variables for each regression include the following indicator variables. *Post-Issuance* takes the value of 1 for coverage by analysts associated with the lead bank one year following the loan issuance quarter, and 0 otherwise. *Lead Equity Underwriter (UW)* takes the value of 1 for coverage by analysts associated with the lead equity underwriter, and 0 otherwise; and *Lead Debt Underwriter (UW)* takes the value of 1 for coverage by analysts associated with the lead debt underwriter, and 0 otherwise. All parameter estimates are reported in percentage points. The t-statistics are reported in parentheses. Statistical significance at the 1%, 5% and 10% levels are denoted by ***, **, and *, respectively.

Panel A. Lender-Affiliated Analyst Recommendations

Analyst Sample:	*1 Year Pre-Loan*	*1 Year Post-Loan*	*Affiliated with Loan Syndicate Lead*	
Dependent Variable:	*Rec. Score*	*Rec. Score*	*Rec. Score*	*Relative Rec. Score*
Model:	*(1)*	*(2)*	*(3)*	*(4)*
Syndicate Lead	2.28***	1.66***		
	(4.60)	(3.52)		
Post Loan Issuance			-5.63***	-1.99**
			(-6.02)	(-2.06)
Fixed Effect	Deal	Deal	Deal	Deal
Obs.	25,065	26,134	3,915	3,915
R^2	0.27	0.27	0.73	0.7

Panel B. Equity-Underwriter-Affiliated Analyst Recommendations

Analyst Sample:	*1 Year Pre-Loan*	*1 Year Post-Loan*	*Affiliated with Lead Equity UW*	
Dependent Variable	*Rec. Score*	*Rec. Score*	*Rec. Score*	*Relative Rec. Score*
Model:	*(1)*	*(2)*	*(3)*	*(4)*
Lead Equity Underwriter (UW)	2.95***	2.56***		
	(6.52)	(6.54)		
Post Equity Issuance			-3.93***	0.10
			(-5.70)	(0.13)
Fixed Effect	Deal	Deal	Deal	Deal
Obs.	27,430	38,340	5,055	5,055
R^2	0.37	0.36	0.83	0.81

Panel C. Debt-Underwriter-Affiliated Analyst Recommendations

Analyst Sample:	*1 Year Pre-Loan*	*1 Year Post-Loan*	*Affiliated with Lead Debt UW*	
Dependent Variable	*Rec. Score*	*Rec. Score*	*Rec. Score*	*Relative Rec. Score*
Model:	*(1)*	*(2)*	*(3)*	*(4)*
Lead Debt Underwriter (UW)	3.49***	2.70***		
	(8.11)	(6.48)		
Post Public Debt Issuance			-2.95***	-1.14
			(-3.70)	(-1.30)
Fixed Effect	Deal	Deal	Deal	Deal
Obs.	163,562	167,663	4,882	4,882
R^2	0.25	0.27	0.81	0.76

Table VII: Analysis of Learning: Changes in Relative Recommendations and Relative Earnings Forecasts

This table presents the distribution of analysts sorted by the following changes around loan issuance: (1) change in relative *recommendations* and (2) change in relative *forecast bias*. For each analyst, we define *Relative Recommendation Score* as the difference between the analyst's Recommendation Score and the median Recommendation Score of other analysts covering the firm during the same timeframe. If an analyst's Relative Recommendation Score increases (decreases) after the loan issuance, this analyst is categorized as issuing a *Relative Recommendation Upgrade (Downgrade)*. The rest of the analysts, which include analysts who do not issue recommendation revisions after loan issuance, are categorized as *No Change*. To measure forecast bias, we use two different but related variables: (1) *Above-Consensus*, an indicator variable that takes the value of 1 if the earnings forecast of an analyst is above the median forecast issued by other analysts for the same firm's fiscal quarter, and 0 otherwise; and (2) *Below-Consensus*, an indicator variable that takes the value of 1 if the earnings forecast of an analyst is below the median forecast issued by other analysts for the same firm's fiscal quarter, and 0 otherwise. Using *Above-Consensus*, we categorize an analyst as having a *Higher Forecast Bias* if her average *Above-Consensus* after the loan is *higher* than before the loan. Using *Below-Consensus*, we categorize an analyst as having a *Higher Forecast Bias* if her average *Below-Consensus* after the loan is *lower* than before the loan. Panel A reports the distribution of lender-affiliated analysts as a function of *Relative Recommendation Upgrade (Downgrade)* and the change in *Relative Forecast Accuracy* using Above-Consensus as the proxy of forecast bias. Panel B reports the analog distribution using Below-Consensus as the proxy of (the lack of) forecast bias. We perform statistical test for the difference between the proportion of *Higher Relative Forecast Bias* in the subsample of analysts issuing *Relative Recommendation Downgrade* vs. those issuing *Relative Recommendation Upgrade*, and denote differences that are statistically significant at the 10%, 5%, and 1% levels with *, **, and ***, respectively.

Panel A. Recommendation Bias vs. Forecast Bias (using Above-Consensus)

Fraction of Observation (in %)		***Post-Loan Relative Forecast Bias***				
		Lower	Same	Higher	No Forecast	Total
Post-Loan Relative Recommendation Change	Relative Downgrade	2.25	4.74	6.17***	3.32	16.49
	No Change	13.05	15.07	15.90	27.28	71.30
	Relative Upgrade	3.20	4.39	3.20	1.42	12.21
	Total	18.50	24.20	25.27	32.02	

Panel B. Recommendation Bias vs. Forecast Bias (using Below-Consensus)

Fraction of Observation (in %)		***Post-Loan Relative Forecast Bias***				
		Lower	Same	Higher	No Forecast	Total
Post-Loan Relative Recommendation Change	Relative Downgrade	4.51	3.80	4.86	3.32	16.49
	No Change	14.12	15.54	14.35	27.28	71.30
	Relative Upgrade	3.08	4.03	3.68	1.42	12.21
	Total	21.71	23.37	22.89	32.02	

Table VIII: Analysis of Strategic Bias: Recommendation Changes and Improvements in Forecast Accuracy

This table presents the distribution of analysts sorted by the following changes around loan issuance: (1) change in relative *recommendations* and (2) change in relative *forecast accuracy*. For each analyst, we define *Relative Recommendation Score* as the difference between the analyst's Recommendation Score and the median Recommendation Score of other analysts covering the firm during the same timeframe. If an analyst's Relative Recommendation Score increases (decreases) after the loan issuance, this analyst is categorized as issuing a *Relative Recommendation Upgrade (Downgrade)*. The rest of the analysts, which include analysts who do not issue recommendation revisions after loan issuance, are categorized as *No Change*. To measure forecast accuracy, we use *Below-Median Error*, an indicator variable that takes the value of 1 if the forecast error of an analyst's earnings forecast is below the median forecast error for all analyst forecasts for the same firm's fiscal quarter, and 0 otherwise. *Pre-Loan* (*Post-Loan) Relative Forecast Accuracy* is the average of an analyst's Below-Median Error in the one year preceding (following) a loan issuance. Panel A reports the distribution of lender-affiliated analysts as a function of *Relative Recommendation Upgrade (Downgrade)* and the change in *Relative Forecast Accuracy* (*Post-Loan* minus *Pre-Loan*). Panel B reports the analog distribution for analysts affiliated with other banks. We perform statistical test for the difference between the proportion of *Higher Relative Forecast Accuracy* in the subsample of analysts issuing *Relative Recommendation Downgrade* vs. those issuing *Relative Recommendation Upgrade*, and denote differences that are statistically significant at the 10%, 5%, and 1% levels with *, **, and ***, respectively.

Panel A. Lender-Affiliated Analysts

Fraction of Observation (in %)		***Post-Loan Relative Forecast Accuracy***				
		Lower	Same	Higher	No Forecast	Total
Post-Loan Relative Recommendation Change	Relative Downgrade	3.20	3.80	6.17**	3.32	16.49
	No Change	14.00	14.47	15.78	27.05	71.30
	Relative Upgrade	3.80	3.44	3.56	1.42	12.21
	Total	21.00	21.71	25.51	31.79	

Panel B. Analysts Affiliated with Other Banks

Fraction of Observation (in %)		***Post-Loan Relative Forecast Accuracy***				
		Lower	Same	Higher	No Forecast	Total
Post-Loan Relative Recommendation Change	Relative Downgrade	4.27	4.92	3.04	4.13	16.36
	No Change	11.80	14.55	12.74	28.67	67.76
	Relative Upgrade	4.20	4.27	3.19	4.20	15.86
	Total	20.27	23.74	18.97	37.00	

Table IX: Market Response to Affiliated Analysts' Recommendations and Earnings Forecasts

This table presents an analysis of the market reaction to analyst stock recommendations (Panel A) and earnings forecasts (Panel B) in the year following a loan issuance. A recommendation is included in the sample if it is different from the analyst's previous recommendation on the firm. An earnings forecast is included in the sample if it is different from the median forecast outstanding for the corresponding quarterly earnings at the time of the forecast issuance. When a recommendation change is an upgrade (earnings forecast is greater than the median), the dependent variable is the (0,1) window daily CAR, calculated as the daily return to the borrower minus the return on the appropriate CRSP size-decile portfolio. When the recommendation change is a downgrade (earnings forecast is less than the median), the dependent variable is equal to negative one times the (0,1) CAR. *Lead Lender* is a dummy variable indicating that the revision was made by an analyst associated with the lead or sole lender on an outstanding loan to the borrower. *Rec. Change 2 Levels* indicates a recommendation change of two levels in either direction; *Rec. Change 3 Levels* indicates a recommendation change of three levels in either direction; *Rec. Change 4 Levels* indicates a recommendation change of four levels in either direction. |*Scaled Forecast Revision*| is equal to the absolute value of the change in the analyst's earnings forecast relative to the median forecast and scaled by beginning of month stock price. All parameter estimates are reported in percentage points. The t-statistics reported in parentheses are calculated using standard errors clustered at borrower*quarter level. Statistical significance at the 1, 5 and 10 percent levels is indicated by ***, ** and *, respectively.

Panel A. Abnormal Stock Returns at Recommendation Revisions

Sample:	All Revisions	Upgrade	Downgrade
Dependent Variable:	CAR if Upgrade; -1*CAR if Downgrade	CAR	-1*CAR
	(1)	(2)	(3)
Lead Lender	0.57***	0.71***	0.43
	(2.73)	(3.12)	(1.36)
Rec. Change 2 Levels	0.36***	0.01	0.65***
	(3.04)	(0.07)	(3.62)
Rec. Change 3 Levels	0.96	-0.49	1.75
	(0.80)	(-0.58)	(0.96)
Rec. Change 4 Levels	1.42	-0.61	2.87*
	(1.31)	(-1.04)	(1.66)
Intercept	2.43***	2.12***	2.68***
	(28.43)	(21.79)	(19.78)
Obs.	18,619	8,425	10,194
R^2	0.13%	0.11%	0.24%

Panel B. Abnormal Stock Returns at Forecast Revisions

Sample:	**All Revisions**	**Positive Revisions**	**Negative Revisions**
Dependent Variable:	**CAR if Pos. Revision; -1*CAR if Neg. Revision**	**CAR**	**-1*CAR**
	(1)	**(2)**	**(3)**
Lead Lender	0.75***	0.72***	0.79***
	(9.36)	(6.95)	(6.79)
|Scaled Forecast Revision|	9.14***	0.00	11.39***
	(5.18)	(0.00)	(5.12)
Obs.	50,743	22,400	28,343
R^2	0.65%	0.26%	0.94%

Table X: Analyst Coverage Drop-off After Global Settlement

This table reports the reduction in analyst coverage around the Global Settlement, which was an enforcement agreement announced in December 2002 between the SEC, NASD, NYSE, and ten of the United States' largest investment firms to address issues of conflict of interest within their businesses. We divide firms that were covered by analysts affiliated with large investment/commercial banks in the 1999–2004 period into two groups by whether the firms had borrowed from the affiliated lender in the five-year period of 1994–1998: (1) Affiliated Firms: firms that had borrowed from the affiliated lender, and (2) Non-Affiliated Firms. In Model (1), we estimate the likelihood that the firm's coverage is dropped in the subsequent year as a function of whether the firm is Affiliated. In Model (2), we add a "Post-Global Settlement" indicator variable (that takes a value of 1 for years after 2002, and 0 otherwise) and its interaction with Affiliated. In Model (3), we restrict the sample to "borrowers", which are firms that had borrowed from at least one of the banks in our sample (although not necessarily the lender affiliated with the covering analyst) in the five year period of 1994–1998. All models include firm fixed effects. All estimates are reported in percentage points, and standard errors are reported in parentheses. Statistical significance at the 1, 5 and 10 percent levels is indicated by ***, ** and *, respectively.

Sample:	All Firms Covered at t	All Firms Covered at t	"Borrowers" Covered at t
Model:	(1)	(2)	(3)
Dependent Variable: $\mathbf{Drop_{t+1}|Covered_t}$			
Affiliated	-2.07**	0.494	-2.24**
	(0.854)	(1.17)	(1.09)
Affiliated*Post-Global Settlement		-5.18***	0.332
		(1.59)	(1.51)
Post-Global Settlement		8.46***	2.68***
		(0.33)	(0.46)
Firm Fixed Effects	✓	✓	✓
Observations	69,802	69,802	29,748
R^2	0.173	0.181	0.121

Table XI: The Effect of Regulation Fair Disclosure and the Global Research Analysts Settlement on Lender-Affiliated Analysts

This table reports the estimates of fixed-effect regressions of affiliated analysts' stock recommendation bias and earnings forecast accuracy for subperiods delineated by the introduction of Regulation Fair Disclosure (Reg FD) and the Global Settlement and related regulations. Reg FD was an SEC ruling implemented in October 2000, mandating that all publicly traded companies must disclose material information to all investors at the same time. The Global Settlement was an enforcement agreement announced in December 2002 between the SEC, NASD, NYSE, and ten of the United States' largest investment firms to address issues of conflict of interest within their businesses. As such, our sample is divided into three sub periods: (1) 2000 and before, (2) 2001–2002, and (3) 2003 and after. We define an indicator variable for each of the latter sub periods: Post-FD (2001-2002) and Post-GS (2003 and after), and interact these sub period indicator variables with our variables of interest. In Models (1) and (2), the dependent variable is *Below-Median Error*, an indicator variable that takes the value of 1 if an analyst's forecast error is below the median forecast error for all analyst forecasts for the same firm in the same quarter. Forecast error is defined as the absolute value of the difference between earnings forecast and the reported earnings per share. In Models (3) and (3), the dependent variable is *Relative Recommendation Score. Recommendation Score* is coded as a number between 0 and 1 (0="Strong Sell", 0.25="Sell", 0.5="Hold", 0.75="Buy", and 1="Strong Buy"). *Relative Recommendation Score* is the difference between an affiliated analyst's *Recommendation Score* and the median *Recommendation Score* of recommendations issued by other analysts during the same timeframe. The independent variables for each regression may include the following indicator variables. *During-Loan* takes the value of 1 for coverage by analysts associated with the lead bank in the quarter of the loan issuance (or between consecutive loan issuances led by the same lender within a year), and 0 otherwise. *Post-Loan* takes the value of 1 for coverage by analysts associated with the lead bank one year after the loan issuance quarter, and 0 otherwise. All parameter estimates are reported in percentage points. The t-statistics are reported in parentheses. Statistical significance at the 1%, 5% and 10% level are denoted by ***, **, and *, respectively.

Dependent Variable:	***Error < Median***		***Relative Rec. Score***	
Model:	***(1)***	***(2)***	(3)	(4)
During-Loan	-0.45	0.92		
	(1.75)	(1.46)		
Post-Loan	3.60*	3.22**	-3.85**	-4.30***
	(1.97)	(1.43)	(1.89)	(1.30)
During-Loan*Post FD	3.20			
	(2.85)			
Post-Loan*Post FD	-0.342		-0.86	
	(2.84)		(2.60)	
During-Loan*Post GS	2.99	1.62		
	(3.60)	(3.45)		
Post-Loan*Post GS	1.32	1.69	4.67**	5.13***
	(3.62)	(3.33)	(2.37)	(1.93)
Deal Fixed Effects	✓	✓	✓	✓
Observations	13,314	13,314	3,915	3,915
R^2	0.184	0.183	0.700	0.700

Appendix Table A: Large Lenders

This table reports the list of large lenders in our sample. These institutions (and the institutions they acquired) acted as the sole or lead lender for loans amounting to more than 90% of the total loan value in the DealScan database during the 1994–2005 period.

Panel A. **U.S. Commercial Banks**	**Panel B.** **U.S. Investment Banks**	**Panel C.** **Foreign-Based Institutions**
JP Morgan Chase	Merrill Lynch	Credit Suisse First Boston
Citigroup	Goldman Sachs	Union Bank of Switzerland
Bank of America	Morgan Stanley	Deutsche Bank AG
Wachovia Bank	Bear Stearns	BNP Paribas SA
SunTrust Bank	Lehman Brothers	Royal Bank of Canada
KeyBank		Bank of Nova Scotia
Wells Fargo Bank		Bank of Montreal
PNC Bank		Toronto Dominion Bank
National City Bank		CIBC (Canadian Imperial Bank of Commerce)