# COMMERCIAL BANK UNDERWRITING:

# CONFLICT OF INTEREST AND CREDIBLE COMMITMENT

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## Abstract

Implicit in the passage of the Glass-Steagall Act of 1933 is the premise that private market solutions to the conflict of interest problem associated with banks lending to and underwriting for the same firm are unavailable, thereby necessitating regulation. The recent deregulatory effort culminating in the repeal of Glass-Steagall by the Financial Modernization Act in 1999 has raised the issue of the potential for conflict of interest once again. In this paper we illustrate the ability of the market to engender solutions to the problem. In the modern era lending banks use underwriting syndicate structure to credibly commit against perceptions of opportunistic behavior. Lending banks predominantly co-manage their client firm's issue with a high reputation, non-lending underwriter. The market perceives such a syndicate arrangement as credible, rewarding such issues with better prices when compared to issues lead managed by the lending bank. Such syndicate structures and issue pricing regularities are not observed when the underwriting bank does not have a lending relationship. Gross spreads are lower for lending bank-underwritten issues relative to investment bank underwritten issues, suggesting economies of scope associated with information production due to lending.

JEL classification: G21; G24; L51
Keywords: Glass-Steagall; Underwriting; Credible Commitment

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Implicit in the passage of the Glass-Steagall Act of 1933 is the premise that private market solutions to the conflict of interest problem associated with banks lending to and underwriting for the same firm are unavailable, thereby necessitating regulation. The recent deregulatory effort culminating in the repeal of Glass-Steagall by the Financial Modernization Act in 1999 has raised the issue of the potential for conflict of interest once again. In this paper we illustrate the ability of the market to engender solutions to the problem. In the modern era lending banks use underwriting syndicate structure to credibly commit against perceptions of opportunistic behavior. Lending banks predominantly co-manage their client firm's issue with a non-lending underwriter. The market perceives such a syndicate arrangement as credible rewarding such issues with better prices when compared to issues lead managed by the lending bank. Such syndicate structures and issue pricing regularities are not observed when the underwriting bank does not have a lending relationship. Gross spreads are lower for lending bank-underwritten issues relative to investment bank underwritten issues, suggesting economies of scope associated with information production due to lending.

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## 1. Introduction

In the wake of the great depression, it was alleged that banks that could both lend to and underwrite securities for a firm took advantage of the information generated through their lending activities to dump low quality securities on naïve investors thus destabilizing securities markets. A consequence of the concern that combining lending and underwriting presented a potential for conflict of interest that was detrimental to investors was the passage of the Banking Act of 1933. Specifically, sections 20 and 21 of the Banking Act, known as the Glass-Steagall provisions effectively prohibited commercial banks from underwriting and dealing in corporate securities.

Implicit in the passage of Glass-Steagall is the premise that private market solutions to the conflict of interest problem were unavailable, thereby necessitating regulation. Kroszner and Rajan (1997) argue against this premise and provide evidence that private market solutions to the conflict of interest problem did indeed exist at the time of the passage of Glass-Steagall. Succinctly, their argument is as follows: If investors are assumed to be on average rational, then they should price the conflict of interest in their purchase decisions by levying a lemons market discount on the bank-underwritten securities. Banks in turn, hampered in their ability to underwrite securities would find it in their own interest, and hence adopt private solutions to credibly commit against perceptions of conflict of interest.[1] In support of their argument, they document from the pre-Glass-Steagall era that issues underwritten by banks through an internal

[1] In competitive markets, in the absence of externalities, banks should internalize the economic costs of all the activities they perform.

securities department (where the potential for conflict is high) obtained lower prices when compared to those underwritten by a separate securities affiliate. As a result of the higher risk premium associated with internal department underwritten securities, banks evolved to housing their securities activities in a separately incorporated subsidiary with its own board of directors thereby using organization structure to credibly commit against perceptions of opportunistic behavior.

In the latter half of the 1980's, faced with increased lobbying by banks that Glass-Steagall undermined their competitiveness in a marketplace of increasing convergence of credit and capital markets, the Federal Reserve embarked on a deregulatory effort. Starting in 1987, the Federal Reserve permitted Bank Holding Companies on a case-by-case basis to establish "Section 20" subsidiaries in which to house previously "bank ineligible" activities. These Section 20 subsidiaries were to be separately capitalized, separated from the lending parent by information, resource and finance related "firewalls", and limited in the amount of revenue to be generated from bank ineligible activities. The initial order in 1987 restricted Section 20 subsidiaries to underwriting mortgage-backed securities and asset-backed securities. Underwriting powers were expanded to include corporate debt in 1989 and corporate equity in 1990. The initial revenue cap on bank ineligible activities was set at 5% of the gross revenue of the Section 20 subsidiary. The revenue limits were subsequently raised to 10% in 1989 and to 25% in 1996. The original firewalls that were imposed were also relaxed with a majority of them removed in 1996. Finally in 1999, Congress passed the Financial Modernization Act (Gramm-Leach-Bliley Act), which effectively repealed Glass-Steagall. [2]

The deregulation of the Glass-Steagall provisions of the Banking Act of 1933, allowing banks to re-enter securities underwriting, has raised the issue of conflict of interest once again. In a modern analog to Kroszner and Rajan (1997) we provide evidence from the equity issues market that the conflict of interest is indeed priced by investors and that banks internalize this cost by credibly committing against opportunistic behavior through their choice of role in the underwriting syndicate.

Our choice of equity issues for study is driven by the consideration that equity is the most "information sensitive" of all publicly issued securities and hence most susceptible to conflict of interest problems. It therefore allows for an experimental design where the probability of observing credible commitment mechanisms is high. Additionally it allows us to complement the modern evidence on commercial bank underwriting which has been primarily limited to debt securities (Gande et. al. (1997), Gande et. al. (1999)).

[2] For a detailed description of the current relaxation of the Glass-Steagall Act, see Federal Register, vol. 62, no. 166, pp. 45295-45307.

Comparing the pricing (underpricing) of equity issues underwritten by investment banks and commercial banks, after controlling for factors that affect issue pricing, we find no differences.[3] Closer examination reveals that this is only true when underwriting commercial banks do not face any conflict of interest (that is, when they do not have a lending relationship with the issuing firm). When the potential for conflict of interest exists, bank underwritten issues (when the lending bank underwrites as a lead manager of the issue) suffer an additional 4% underpricing compared to investment bank underwritten issues.

When we examine bank-underwritten issues in greater detail, we find systemic patterns in their underwriting syndicate role that is related to whether or not they have a lending relationship with the issuing firm. Specifically, the proportion of syndicate co-manager roles to lead manager roles for lending banks is about 3 times higher than that for non-lending banks. Logit estimations corroborate this pattern. After controlling for other factors that may affect lead manager selection, the logit results indicate that the main determinant of whether a bank assumes a co-manager role in the underwriting syndicate is the presence of a lending relationship with the issuing firm. No such patterns in the syndicate structure are observed when underwriting banks don't have a lending relationship with the issuing firms.

Additionally, we find systemic patterns in the underwriters that banks co-manage with that are related to whether or not they have a lending relationship with the issuing firm. Market share data and league table rankings indicate that when banks have a lending relationship with the issuing firm, they co-manage with high reputation lead underwriters. Specifically, lending banks co-manage with underwriters whose average seasoned equity issue market share is about 9% while the corresponding figure for non-lending banks is 7% and the difference is statistically significant. The top five underwriters based on the industry league tables underwrite 38% of all seasoned equity issues for the sample years. These top five underwriters lead manage 64% of all lending bank co-managed issues. In contrast, these same high reputation underwriters lead manage only 48% of all non-lending bank co-managed issues.

Issue pricing is also systematically related to syndicate structure for bank-underwritten issues. Issues underwritten through a syndicate structure where the lending bank assumes a co-manager role alongside an independent lead manager obtain higher prices (about 4%) than those lead-managed by the lending bank. No such pricing differences are observed across syndicate structures when underwriting banks do not have a lending relationship with the firms being underwritten. While no differences in the gross spreads are observed between lending bank lead

[3] Throughout the remainder of the paper, underwriting by the section 20 subsidiary of a bank holding company is referred to as commercial bank or simply bank underwriting.

and co-managed issues, lending bank underwritten issue on average have a gross that is 0.36% lower than that of non-lending bank underwritten issues.

Collectively, our results paint the following picture. The potential for conflict of interest exists when a bank lends to and underwrites securities for a firm. This potential for opportunistic behavior is indeed priced by rational investors who levy a an additional "lemons market" discount of approximately 4% on the price of lending bank underwritten issues when compared to non-lending bank underwritten issues or investment bank underwritten issues. Since the perception that they could use lending generated information to take advantage of investors impairs their ability to effectively underwrite securities for their loan client firms, banks face incentives to credibly commit against such perceptions. We argue that banks mitigate perceptions of opportunistic behavior by co-managing the issue of a loan client firm with a non-lending, high reputation underwriter. Co-managing an issue subject to the conflict of interest problem with an independent lead manager obtains independent certification of the issue on account of the reputation capital of the independent lead manager. The market perceives such a syndicate structure to be credible, rewarding issues subject to the conflict of interest problem underwritten under such a structure with higher prices. Empirically then, when banks credibly commit through syndicate structure the lemon's discount that would otherwise be levied by investors disappears, and no pricing differences are observed between commercial bank and investment bank underwritten issues. The presence of a lending relationship does confer some advantages to the underwriter as evidenced by lower gross spreads are lower for lending bank underwritten issues relative to non-lending underwriters. However given that the information obtained through lending could also be used opportunistically by the underwriter, the benefit in terms of lower total cost of the issue (underpricing plus gross spread) is realized only when the underwriter can credibly commit against opportunistic behavior by co-managing with an independent underwriter (higher prices).

Our findings, in addition to providing evidence that private market solutions do exist for the conflict of interest problem associated with modern bank underwriting, also have regulatory policy implications. The deregulatory effort mandated Bank Holding Companies to house their securities operations in a separately capitalized "Section 20" subsidiary, separated from the lending arm of the parent by resource and information firewalls. If these restrictions were effective in curtailing banks' incentives to engage in opportunistic behavior, or investors perceived it as such, banks would not face the incentives nor take actions to commit against such behavior. More importantly, in the absence of market failure in addressing the conflict of interest problem, regulatory interventions may result in welfare losses to the extent that banks are not able

to realize potential scale and scope economies due to operational restrictions that may result in lowering the cost of capital to firms.

The rest of the paper is organized as follows. In the following section we develop the conflict of interest problem associated with bank lending and underwriting, the incentives for banks to credibly commit against such perceptions, and syndicate structure as a credible commitment mechanism. In section 3, we detail our sample construction. Our empirical results are presented in section 4 with robustness checks in section 5. Section 6 concludes.

## 2. Conflict of interest and credible commitment

Commercial banks produce information about a firm when they lend to it, either through the credit evaluation process associated with making a loan or through the ex-post monitoring to ensure repayment that accompanies the loan. This information is private (unavailable to the market) and can serve as a source of considerable advantage to banks when it comes to underwriting securities for their loan client firm. They can use this informational advantage to enhance their effectiveness in underwriting, benefiting both the issuer and investors. For instance, relative to investment banks, their due diligence costs may be lower resulting in superior "certification" of the issue to potential investors resulting in better prices for the firm (Puri (1999)). Alternatively, they can use this informational advantage to benefit themselves (and the issuer) at the expense of investors - a "conflict of interest". The conflict of interest can manifest itself in essentially two ways - the bank can issue securities for the firm to fund repayment of its loan upon recognizing the deteriorating prospects of the firm (moral hazard) or can “cherry pick” by funding the low credit risks through loans and underwriting the high credit risks (adverse selection).[4]

Rational investors recognize the possibility of conflict of interest and levy a lemon's discount on the price of the bank-underwritten securities. Evidence that rational investors indeed behave this way is provided by Kroszner and Rajan (1997) and Hamao and Hoshi (1999). Kroszner and Rajan (1997) document from the pre Glass-Steagall era that issues underwritten by internal securities departments of banks (where the potential for conflict of interest is high) obtain lower prices than those underwritten by separately capitalized securities affiliates of the lending parent. Hamao and Hoshi (1999) studying the recent Japanese experience with allowing commercial banks to underwrite securities find that investors price issues underwritten by bank

[4] For a detailed account of the various benefits and costs of combining lending and underwriting see Rajan (1996).

owned subsidiaries lower than those underwritten by securities houses. Both the studies mentioned above provide evidence from the debt issues market. Given that equity issues are more information sensitive than debt issues, it is reasonable to expect investors to price the conflict of interest in equity issues as well.

The perception of conflict of interest may force banks to underwrite high quality securities as evidenced by the lower default probabilities of bank underwritten issues prior to the passage of Glass-Steagall (see Kroszner and Rajan (1994), Ang and Richardson (1994) and Puri (1994)), engage in private placement to institutional investors or avoid the conflict of interest problem altogether by underwriting securities of firms with whom they have no lending relationship (see Hamao and Hoshi (1999)).

Alternatively, to the extent that the perception of conflict of interest imposes a cost on banks as it may undermine banks' abilities to compete in the market for underwriting, economic theory suggests that, in competitive markets, banks should internalize these costs. That is, barring any internal control failures, banks should face incentives to credibly commit against opportunistic behavior to mitigate such perceptions. Examining bank underwriting in the pre Glass-Steagall years, Kroszner and Rajan (1997) find that the higher risk premium imposed by the market on internal department issues led to banks housing their securities activities in a separately incorporated affiliate with its own board of directors, and that issues underwritten by the securities affiliates obtained higher prices. Thus banks voluntarily evolved to choosing an organization structure to credibly commit against opportunistic behavior.

In the modern era we document that when banks face perceptions of conflict of interest when underwriting securities, they predominantly co-manage the issue with a reputable non-lending lead manager. We interpret this observed pattern in syndicate structures as a commitment mechanism used by banks against perceptions of opportunistic behavior. The argument is essentially a "co-branding" one - co-managing with an independent, high reputation underwriter provides effective certification of the issue (and credibly mitigates the perception of conflict of interest) on account of the reputation capital of the lead underwriter.

To better understand the argument, consider the institutional features associated with syndicate formation in an offering. The process of raising capital for a firm starts with the selection of an investment banker to "lead" the issue. The chosen investment banker usually "manages" the eventual underwriting. [5] Competition is usually intense among underwriters for lead managing an issue as the lead manager position confers considerable political and financial power in the market. It is commonplace for the bank chosen to lead the issue to appoint its

[5] Syndicate management role of an underwriter involves the formation of the underwriting and selling syndicate, assigning participation roles to the syndicate members and in general "running the books".

closest rivals in the selection process as co-managers, or at least provide them with large share allocations. The lead manager along with the co-mangers are responsible for performing the "origination" function which includes acting as an advisor in the early stages of formulating a financing plan, performing due diligence in assessing business prospects, preparation and filing of the registration statement with the Securities Exchange Commission and negotiating the basic underwriting terms. [6]

The issuing firm's choice of the lead manager also certifies the issue to investors. The reputational capital of the lead manager, which helps certify the issue, is also a source of considerable rents to the underwriter. Commercial banks may have a competitive advantage over investment banks in being selected as lead managers for their client firm's offering because of their informational advantage over investment banks.[7] However, the perception of conflict of interest associated with lending and underwriting coupled with their de-novo status as underwriters prevents them from realizing their competitive advantage due to their limited ability to credibly certify the issue. In such instances commercial banks can raise capital for a client firm by bringing the issue to an independent lead manager, in turn accepting a co-manager role in the syndicate for originating the issue. The advantage of such an arrangement is that the commercial bank obtains credible certification of the issue through an independent lead manager without sacrificing its cost advantage in providing underwriting services. The independent lead manger's reputation serves to credibly commit against perceptions of taking advantage of investors, as now the lead manager's reputation is on the line. Benefits accrue to the independent lead manager and the bank co-manager from the added publicity and fees from doing another deal.[8]

## 3. Sample Construction

In this study we focus only on equity issues. The reasoning behind our focus is that equity is the most information sensitive among all public securities, and hence subject to high potential for conflict of interest. The need for credible commitment, and hence our probability of observing such mechanisms would therefore be more pronounced for equity issues, compared to other publicly issued securities.

[6] The "co-manager" originates the issue along with the lead manager, but does not manage the syndicate or "run the books".

[7] Another source of competitive advantage may be the adverse selection problem associated with a loan client firm switching to an independent underwriter, thereby enabling the commercial bank to hold the client firm captive. Nevertheless, once a commercial bank decides to underwrite the firm's offering, it still faces the conflict of interest problem.

The sample for this study consists of only Seasoned Equity Offerings (SEOs). Although it would have been interesting to include Initial Public Offerings (IPOs), the number of IPOs where the underwriting bank had a lending relationship with the issuing firm was not large enough to construct a meaningful sample. [9] Hence IPOs were not included in the study. Further prior to 1994 we did not observe a significant number of SEOs underwritten by banks either. Hence, in order to construct the sample for our study we started with the set of all firm commitment SEOs for the years 1994 through 1997. Data on the date of issue, name of issuer, underwriting syndicate structure and offering terms of our sample of SEOs were obtained from EQUIDESK. We were able to obtain a total of 2317 SEOs across all years that had adequate details of the issue to be included in the sample.[10] A year-by-year breakdown of SEOs in the sample is provided in Table 1.

Since the focus is on bank underwriting, we next classified all issues in the sample based upon the identity of the underwriter. An issue was classified as 'bank' underwritten, if a section 20 subsidiary of a bank holding company was the lead manager and/or the co-manager of the issue.[11] All other issues were classified as 'non-bank' underwritten issues. Based on this classification scheme, 300 issues were identified as bank-underwritten issues. A year-by-year breakdown of the number of bank underwritten and non-bank-underwritten issues is provided in Table 1. As Table 1 indicates, the number of bank-underwritten issues steadily rises from 27 in 1994 to 158 in 1997. The pattern of increase in bank involvement in seasoned equity offerings is exponential, with the number of issues underwritten almost doubling every year over the previous year. Gande et. al. (1999) document a similar pattern in both equity as well as in debt underwritings by section 20 banks.

As the potential for conflict of interest arises when the underwriter has a lending relationship with the issuing firm, our next step was to identify the lending relationships for all the issuing firms.[12] We used Loan Pricing Corporation's (LPC) Dealscan database to determine

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[8] Chen and Ritter (2000) report that the lead manager receives 20% of the gross spread as management fees which the manager splits on a negotiated basis with the co-managers.

[9] In the years 1994 to 1997, although the number of IPOs underwritten by banks was 157, the number of IPOs underwritten by lending banks was only 16. Of the 16 issues, lending banks co-managed 15 and lead managed 1 issue. From 1990 (when banks were granted equity underwriting powers) to 1993, we observed just a handful of bank underwritten IPOs.

[10] Excluding offerings by non-U.S. corporations, closed end fund offerings, real estate investment trusts, financial firms and utilities, American Depository Receipts and unit offerings, has no material effect on the results of this paper.

[11] Data on section 20 subsidiaries and their parent bank holding company was obtained from the Board of Governors of the Federal Reserve System.

[12] Although the potential for conflict of interest arises when a bank lends to and underwrites securities for the same firm, an added dimension of this conflict of interest is when the purpose of the security issue is to repay the debt owed to the underwriting bank. However, we were not able to identify even a single issue with the stated purpose of repaying bank debt in our sample of lending and underwriting bank issues. While the ability to have such issues in our sample would have explicitly provided us cases where the

the presence of a lending relationship.[13] A firm was classified as having a lending relationship with the underwriting bank if the lending parent of the Section 20 underwriter was either the sole lender on a loan or a "lead" lender in a syndicated loan that was outstanding to the issuing firm as of the day the issue was registered with the Securities Exchange Corporation (SEC).[14] Of the 2317 issues in our sample, we identified lending relationships with banks for 1170 issues through LPC.[15] Of the sub-sample of 300 bank underwritings, we were able to obtain 50 issues for which the issuing firm had a lending relationship with the banking parent of the Section 20 underwriter. The annual breakdown presented in Table 1 indicates that a majority of the bank lending and underwriting issues are from the years 1996 and 1997 (40 out of the 50 issues).

Table 2 provides the descriptive statistics of the sample under study. The average market capitalization of the issuing firm in our sample is $829.7 million while the average size of the equity issue is $95.8 million. The classification of the sample into issues that were underwritten by banks and those that weren't reveals some interesting facts. The average issue size for a bank-underwritten issue is $150 million while the average issue of a non-bank underwriting is $87.7 million. The difference is statistically significant at the 1% level. Similarly, the average market capitalization of bank-underwritten firms ($1215.4 million) is significantly higher than the market capitalization of non-bank-underwritten firms ($773.61 million). The trend of banks underwriting larger equity issues is in contrast to debt issues. Gande et. al. (1997) provide evidence that banks in general bring to market a greater proportion of smaller debt issues when compared to investment banks. One possible reason for this contrasting trend in the case of equity issues might be due to high information sensitivity of equity issues. Consequently, banks choose to underwrite larger firms (and larger issues), which typically have lesser information asymmetry problems relative to smaller firms in the market.

The mean underpricing for bank-underwritten issues is 2.17% while that for non-bank underwritten issues in 2.96%. While the difference in means is statistically significant, the median values for underpricing show no statistical difference across the subsamples. Gross spreads are however lower for bank underwritings compared to non-bank underwritings both in terms of means (4.86% compared to 5.22%) and in terms of medians (5.0% compared to 5.25%).

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potential for moral hazard exists, it is important to note that the adverse selection (cherry picking) problem still characterizes the bank lending and underwriting sample.

[13] The Dealscan database comprises information about loans over $100,000 in size to firms filing SEC 13Ds, 14Ds, 13Es, 10Ks, 10Qs, 8Ks, and S-series (registration) filings. The database consists primarily of publicly held companies and privately held companies with public debt outstanding.

[14] In loan syndication a bank is classified as a "lead" lender if it retains primary administrative, monitoring and contract enforcement responsibilities. A lead lender typically retains the largest stake in the loan. Lead lenders are identified from the LPC Dealscan database if the bank's role in the syndicate is characterized by titles such as arranger, co-arranger, administrative agent, agent or co-agent.

[15] The potential for bias created by the use of LPC in identifying lending relationships is discussed in section 5.2.

Table 2 thus suggests that banks provide no pricing advantage (lower underpricing) but charge lower spreads on their issues when compared with non-bank (investment bank) underwritten issues. These measures (underpricing and gross spreads) are analyzed in greater detail in the following sections.

## 4. Results

We present our results in three subsections. The first subsection document the patterns in the syndicate structure of bank-underwritten issues and the associated tests of differences between the lending and non-lending subsamples. The second subsection explores the relationship between syndicate structure and issue pricing to determine whether the market perceives the use of syndicate structure as a credible commitment mechanism. Establishing the relationship allows us to control for the credible commitment mechanism and hence examine whether investors price the conflict of interest in bank lending and underwriting issues. The third subsection examines the relationship between gross spreads and syndicate structure. The intent here is to determine whether bank underwriters compensate for entry discounts offered in pricing through higher spreads, and consequently ascertain the robustness of syndicate structure as a credible commitment mechanism.

### 4.1 Syndicate structure

Table 3, Panel A provides the annual breakdown of the bank-underwriting sample by syndicate role. Of the 265 issues where the underwriting bank has no lending relationship with the issuing firm (bank "no-lend" issues), the bank assumes a co-manager's role in 169 (64%) of them.[16] In contrast, of the 50 issues in which the underwriting bank has a lending relationship with the issuing firm (bank-lend issues), the bank assumes a co-manager's role in 42 (84%) of them. To test whether these proportions are statistically different, we perform a chi-square test of homogeneity. Table 3, Panel B presents a 2 X 2 table of lending relationship and syndicate role, with entries in cells representing the number of issues. The chi-squared test of homogeneity tests whether the population proportion of co-managed to lead managed issues for bank- lending issues is statistically greater than the same proportion for the bank non-lending issues. The chi-squared statistic obtained is 14.15, which is greater than the one-tailed critical value of 6.635 at 1%

[16] There are 250 firms underwritten by banks that have no lending relationship with the issuing firm. Of these 250 firms there are 15 firms that have issues in which banks are involved as both a lead and a co-manager. The number of non-lending bank involved issues is therefore 265.

level.[17] Thus, the test indicates that when a potential for conflict of interest exists, banks tend to co-manage the issue with an independent lead manager.

It is possible that what we observe from the test of proportions - that lending banks predominantly co-manage their issues compared with non-lending banks, is a "second order" effect driven by the inability of banks to lead manage in general. Banks, by virtue of being new entrants into the underwriting business may not have the reputational capital or the distributional capabilities to lead manage an issue. A cursory look at our data however does not support this conjecture. Banks lead-manage 104 of the 300 issues they are involved in for our sample years. Nevertheless, we control for a bank's ability to lead manage and examine whether the presence of a lending relationship is related to banks co-managing the issue through a logit specification. We control for a bank's ability to lead manage an issue through two proxies - one for its reputational capital, BANKREP, and the other for its distributional capabilities, RELOFFSZ. BANKREP is computed as the seasoned equity market share of the bank underwriter in the year prior to the offer, while RELOFFSZ is computed as the ratio of the dollar value of the offer to the issuing firm's market capitalization on the day prior to the offer.

In our logit specification, the dependent variable takes on the value of 1 when the commercial bank is a lead underwriter and 0 otherwise. The independent variables are RELOFFSZ, BANKREP and a binary variable LEND, which takes on the value of 1 if the bank underwriter has a lending relationship with the issuing firm and 0 otherwise. The independent variable coefficients and their standard errors obtained through maximum likelihood estimation are presented in Table 4. The coefficients on the RELOFFSZ and BANKREP variables are not significant but their signs are in the expected directions. The negative coefficient on RELOFFSZ variable suggests that larger issues are co-managed by banks and the positive coefficient on the BANKREP variable suggests that higher reputation is associated with banks lead managing the issue. The LEND variable is however a statistically significant (at the 1% level) -1.280, indicating that the main factor determining whether a commercial bank will act as a co-manager in the firm's underwriting is the presence of a lending relationship with the firm, corroborating our result from the test of proportions.[18] Controlling for the size of the issue and the reputation of the lead underwriter, the odds of the commercial bank being a co-manager as opposed to a lead manager increase by 72% if the commercial bank were to have a lending relationship with the issuer.[19]

[17] We ran the test excluding the issues in which banks appeared as both lead and co-lead managers. The results were qualitatively unchanged.
[18] We ran the logit including industry dummies (2 digit SIC codes). The results were materially unchanged.
[19] {Antilog (-1.280) - 1} = -0.72

Thus far, we have established that banks assume a co-manager role alongside an independent lead manager in greater proportions when they have a lending relationship with the issuing firm than when they don't. However for such a syndicate structure to be credible, they would have to co-manage alongside high reputation lead underwriters, because it is the reputation capital of the lead underwriter that provides the co-branding required to certify the issue. We investigate this issue in two ways - by examining the market share (a cardinal proxy for reputation) and the league rankings (an ordinal proxy for reputation based on market share) of lead managers that banks co-manage with.

Table 5, Panel A presents the mean market shares of the lead managers that banks co-manage with for both the lend and no-lend subsamples.[20] The mean market share of the lead managers that banks co-manage with when they don't have a lending relationship with the issuing firm is about 7%, while the corresponding number is 8.64% when they do have a lending relationship with the issuing firm. The difference in the means is statistically significant (one-tailed test) suggesting that banks co-manage with more reputable lead managers when they have a lending relationship.

Table 5, Panel B, presents a frequency distribution of lead manager rankings obtained from the SDC league tables. The league tables rank managers every year in descending order of last year's market share. As a baseline, over the sample years, the top five (high reputation) managers underwrote, on average, 38% of all SEOs while the next five (low reputation -ranking from 6 to 10) managers underwrote, on average, 21% of all SEOs. Against these benchmarks, lending banks co-managed with the top five managers approximately 64% of the time while non-lending banks co-managed with the same group only 48% of the time - lending banks co-manage a considerably higher number of issues with high reputation lead managers when compared to non-lending banks. Further corroboration is provided by comparing number of issues that lending and non-lending banks co-managed with low reputation managers - lending banks co-managed with such ranked underwriters only about 12% of the times in contrast to non-lending banks who co-managed with such underwriters about 18% of the times.

The empirical analysis thus far reveals that there are systemic differences in the syndicate structures of bank underwritten issues depending on whether the underwriting bank has a lending relationship with the issuing firm or not. Lending banks co-manage a higher proportion of their issues with high reputation underwriters when compared to non-lending banks.

[20] The market share number used for a lead underwriter of an issue in the sample is the previous year's market share as reported by SDC in the league tables for the issuing year.

### 4.2 Syndicate structure and issue pricing

We next examine whether syndicate structure, where independent certification of the issue is obtained by co-managing with a non-lending underwriter, is perceived to be credible by investors by examining the pricing of security issues. Issue pricing is studied by examining the extent to which the offer price is underpriced relative to the close price on the day of the offer.[21] We compute a measure of issue pricing (underpricing), UNDPRC as the return from buying at the offer and selling at close on the offer day. We also computed an alternate measure of the issue discount - the return from buying at the pre-offer close price and selling at the offer price. The results from the use of this alternate measure of underpricing are qualitatively similar to the results using UNDPRC. Hence, we present only the results associated with the UNDPRC measure of the issue discount.

#### 4.2.1 Univariate tests

Table 6 presents the mean values of underpricing (UNDPRC) for various bank-underwriting samples and the differences between them. Panel A of the table segregates the bank non-lending sample by the syndicate role of the underwriting bank. The mean underpricing for a bank lead managed issue is 2.7%, while that of a co-managed issue is 1.97%. A t-test of difference in means results in a t-statistic of 1.264, which is statistically insignificant at conventional levels. This suggests that the syndicate structure does not have an impact on the pricing of issues when the underwriting bank does not have a lending relationship with the issuing firm (when there is no potential for conflict of interest).

Panel B of the table segregates the bank-lending sample by the syndicate role of the underwriting bank. The mean underpricing of the issues in which the underwriting bank assumes a lead manager's role is 4.1%. In contrast the mean underpricing of the co-managed issues is 1.3%. A t-test of whether the mean for the lead managed issues is greater than mean for the co-managed issues yields a t-statistic of 2.087, which is statistically significant at the 5% level.

The results from Table 6 provide preliminary evidence that mean issue discounts are lower if the bank lends and co-manages the underwriting as opposed to when it lends and lead manages the underwriting. Further, no pricing difference in the pricing is observed between the lead and co-managed subsamples when the bank has no lending relationship with the issuing firm. This finding is suggestive of the market credibly perceiving the use of syndicate structure as a commitment mechanism in the presence of conflicts of interest. However, as univariate tests

[21] Issue underpricing is a standard metric used to study issue pricing (for example see surveys of initial public offerings by Ibbotson and Ritter (1995) or for seasoned offerings by Eckbo and Masulis (1995)).

do not control for other factors that affect issue underpricing, we run multivariate tests through regressions.

### 4.2.2 Multivariate tests

Table 7 presents the results of our regression analysis. The coefficients for all the independent variables are obtained from ordinary least-squares estimation. In order to mitigate problems associated with heteroskedasticity, White's correction was employed in the estimation process. The dependent variable in all the regressions is the issue discount (UNDPRC) computed as the return from buying at the offer price and selling at close on the day of the offer.

As a base case, in regression I, we regress the issue discount on the relative offer size (RELOFFSZ, computed as the ratio of the dollar value of the offer to the issuing firm's market capitalization on the day prior to the offer), the size of the firm (LNMKT, computed as the natural logarithm of the market capitalization of the issuing firm on the day prior to the offer), a market share measure of underwriter reputation (UNDREP, computed as the seasoned equity market share of the lead underwriter in the year prior to the offer), and a dummy variable, BANK that signifies whether the issue was underwritten by a bank. Relative offer size is included to control for price pressure effects due to the new supply introduced in the market through the offering. Firm size is included to control for existing information about the firm (the degree of information asymmetry). Underwriter reputation is included to control for the certification provided by the underwriter. All these three variables have been shown to affect issue pricing.[22] Year dummies are added to control for unspecified market factors that may affect issue pricing (for example, hot and cold markets for new issues). The coefficient on the firm size and underwriter reputation variables are negative and statistically significant at conventional levels, suggesting that larger issues underwritten by high reputation underwriters suffer smaller underpricing. The size of the offer does not seem to impact the underpricing. The year dummies, which capture incremental underpricing over the year 1994, are all positive and statistically significant except the dummy for the year 1997, possibly capturing year specific idiosyncratic effects. In this specification, the BANK dummy variable captures the marginal pricing differences, if any, between banks underwritten issues (as lead and/or co-managers) and investment bank underwritten issues. The coefficient on the dummy is -0.0009 and is not significant at conventional levels. This suggests that there are no pricing differences between bank-underwritten issues and non-bank (investment bank) underwritten issues after controlling for other factors that affect issue pricing.

Given that the potential for conflict of interest arises when banks lend to and underwrite for the same firm, in regression II we add a dummy variable LEND, that takes on the value of 1

[22] See survey on Seasoned Equity Offerings by Eckbo and Masulis (1995).

when the issuing firm has a lending relationship with the underwriter.[23] The dummy variable LEND captures the marginal pricing differences, if any, between firms that have a lending relationship with the bank-underwriter and those that don't. The coefficient on the LEND dummy is 0.007, and is not significant at conventional levels. This would seem to suggest that after controlling for other determinants of issue pricing, the presence of a lending relationship with the bank-underwriter is not perceived to be representative of a conflict of interest faced by the underwriter, and is hence not priced by investors. However, it would also be consistent with the explanation that, bank-underwriters anticipate that the presence of a lending relationship would convey perceptions of conflict of interest, and hence take actions to credibly commit against such perceptions, mitigating the lemons discount that would otherwise be levied by investors.

To distinguish between the alternative explanations above, we run regression III, where we model to isolate the effect of a lending relationship (conflict of interest) from that of the commitment mechanism on issue pricing. Regression III is similar to regression II except for the inclusion of a dummy variable LEND&COM, which takes the value of 1 if the underwriter has a lending relationship with the issuing firm and is a co-manager of the issue, and 0 otherwise. Thus in this specification the LEND variable is associated with issues lead managed by banks which have a lending relationship with the issuer and can be interpreted as a "conflict of interest" variable. Its coefficient would capture the additional underpricing (if any) associated with bank underwriting due to the presence of a lending relationship (the "lemons" discount). The dummy variable, LEND&COM, can be interpreted as the "commitment mechanism" variable, and its coefficient would provide a measure of the difference in issue discount between "lend-lead" issues and "lend-co-manage" issues. The coefficient on the LEND variable is 0.0397 and it is significant at the 5% level, while the coefficient on the LEND&COM variable is –0.0375 and it is significant at the 5% level. The positive and significant coefficient on the LEND variable suggests that investors perceive the presence of a lending relationship to be associated with conflicts of interest and levy an additional 4% (approximately) "lemons" discount on issues lead managed by the lending bank. The negative and significant coefficient on the LEND &COM variable suggests that when banks that have a lending relationship with the issuing firm credibly commit against opportunistic behavior by co-managing with an independent lead manager, the "lemons" discount is almost neutralized.

Based on the results of regression III, it would be premature to conclude that syndicate structure is a credible commitment mechanism unless we establish that no pricing differences

[23] Note that a lending relationship with the underwriter exists only if the underwriter is a bank. We checked to see if any of the investment banks in our sample had any outstanding loans (like a bridge loan) with firms they underwrote. We did not find any. Bank underwriters, however, may not have a lending relationship with the issuing firm.

exist between the lead and co-managed subsamples for the bank-no-lend sample. We therefore run regression IV. Regression IV is similar to regression III, except that the LEND dummy is replaced by a NOLEND dummy and the LEND&COM dummy is replaced by a NOLEND&COM dummy. The NOLEND dummy takes the value of 1 when the bank-underwriter has no lending relationship with the issuing firm and 0 otherwise. The NOLEND&COM dummy takes the value of 1 when the bank-underwriter has no lending relationship with the issuing firm and is a co-manager of the issue and 0 otherwise. The NOLEND&COM dummy thus captures the difference in the issue discount between lead managed and co-managed issues for firms that have no lending relationship with the underwriting bank. The coefficient on the NOLEND&COM dummy is 0.004 and is not significant at conventional levels. Thus when issuing firms have no lending relationship with the underwriting bank, there are no pricing differences in the issues whether they are lead managed or co-managed by the bank.

The results of regressions I, II, III and IV taken together suggest that the presence of a lending relationship between the firm and the underwriter is associated with investor perceptions of conflict of interest. When underwriting banks commit against such perceptions by co-managing the issue of a firm with an independent lead manager, investors reward the issue with a higher price. When no perceptions of conflict of interest exist (no lending relationship), the underwriting bank's role in the syndicate is not priced in the market.

### 4.3 Underwriting spreads

The total cost of issuing securities for a firm is the sum of the issue underpricing and the spread paid to the underwriter. Our contention that syndicate structure serves to credibly commit against perceptions of conflict of interest would be suspect if lead managing banks charge lower spreads to compensate for the higher underpricing relative to co-managing banks. [24] We examine this possibility next.

#### 4.3.1. Univariate tests

Table 8 presents the mean gross spreads for various issue subsamples and the differences between them. Panel A of the table presents the values for the bank and non-bank underwriting subsamples. The mean gross spread for bank underwritings (4.86%) is lower than the corresponding value for non-bank underwritings (5.22%). The difference in spreads of 0.36% is statistically significant at the 1% confidence level. To further examine the lower spreads

[24] Banks may offer "entry discounts" in the form of lower spreads to lead manage an issue. Lead managing an issue brings with it publicity, fees and the political capital required to enter and operate in the new issues market.

observed for bank-underwritten issues, we next segregate our bank underwriting sample, in panel B of the table, on the basis of the presence (or absence) of a lending relationship with the issuing firm. The mean spread for the bank lending and underwriting sample (4.29%) is lower than that for the no-bank lending but underwriting sample (4.97%). The difference of 0.69% in the gross spreads between the two subsamples is significant at the 1% level.

To test whether lending banks subsidize spreads to compensate higher underpricing when they lead manage issues, in panel C of the table, we further segregate the bank-lending and underwriting sample by the bank's role in the underwriting syndicate. The gross spreads for the issues where the bank assumes the co-manager's role is 4.31%, while the gross spread for the issues where the bank assumes the lead manager's role is 4.17%. The difference between the two sub-samples of 0.14% is not significant at conventional levels.

The univariate results suggest that bank underwritings in general have lower spreads than non-bank underwritings. Within the bank-underwriting sample, lower spreads are observed for only those issues wherein the issuing firms have a lending relationship with the underwriter. Within the bank-lending sample, no difference in the spreads is observed between issues lead or co-managed by the bank. While the results presented above are suggestive of banks enjoying lending related advantages, they are not indicative of banks charging lower spreads to compensate for higher underpricing associated with lead managing issues. We investigate this issue further in a multivariate context accounting for factors that influence gross spreads.

### 4.3.2 Multivariate tests

Table 9 presents our regression results on gross spreads. All regressions are ordinary least square regressions adjusted for heteroskedasticity using White's correction. As a baseline case, we run regression I where the dependent variables are issue size (OFFSIZE) and a dummy, BANK, which takes on the value of 1 if a bank underwrites the issue. We control for offer size in our regression as gross spreads and offer size tend to be inversely related due to scale economies associated with raising funds in the capital markets. The coefficient on the issue size variable is negative and significant indicating that gross spreads are indeed inversely related to the size of the offering. The coefficient on the BANK variable is -0.099 and is significant at the 10% level. Thus bank-underwritten issues have lower spreads even after controlling for the size of the issue.

It is conceivable that banks could use their lending related advantage over investment banks to subsidize underwriting services. One possible avenue for providing these subsidies is in the form of lower underwriting fees. In order to control for this effect, in regression II we introduce a dummy variable LEND. The variable LEND takes on a value of 1 if the bank has a lending relationship with the issuing firm and 0 otherwise. Introducing the LEND variable causes

the BANK variable to become insignificant. This implies that there is no difference in the underwriting spreads between commercial banks and investment banks when the commercial bank has no lending relationship with the issuing firm. The coefficient on the LEND variable is -0.363 and is statistically significant at the 1% level. Thus, the decrease in bank-underwritten spreads, observed in regression I, is primarily driven by the sub-sample of issues wherein the bank has a lending relationship with the issuer.

In order to test whether lending banks charge lower spreads to lead manage the issue relative to co-managing the issue, in regression III, we add a dummy variable LEND&COM to the regression II specification. LEND&COM takes on a value of 1 when the bank has a lending relationship and co-manages the issue and 0 otherwise. The LEND&COM variable thus captures the marginal difference in the gross spreads (if any) between issues lead managed and co-managed by the lending bank. The coefficient on the LEND&COM variable is 0.228 and statistically insignificant indicating no difference in spreads between lead and co-managed lending bank issues.

Thus the presence of a lending relationship does seem to provide benefits in the production of underwriting services perhaps from the reusability of information generated through the lending relationship. The reduction in gross spreads from being underwritten by a lending underwriter is 36 basis points (the coefficient on the LEND variable from regression II).[25] However, the reduced gross spread does not compensate for the higher underpricing in bank lead managed issues relative to bank co-managed issues controlling for the presence of a lending relationship. Thus the benefit in the form of lower total costs of the issue (through lower underpricing and not lower gross spreads) is achieved only when the underwriting bank can credibly commit against the perception of conflict of interest associated with the lending relationship.

## 5. A Robustness check - LPC sample bias

In the analysis thus far we have assumed that if we didn't find any outstanding loans for an issuing firm through LPC, then the firm had no lending relationships with any bank. [26] This assumption could potentially bias our results if we misclassified some firms as not having any outstanding loans, when they actually did. We believe that the bias is negligible for two reasons. First, banks tend to underwrite equity issues for large firms (the mean market capitalization of

[25] Thus for an average $87.7 million issue by an investment bank, the savings in spread would be $315,720 if the issue had been underwritten by a lending bank.
[26] LPC includes only loans that are in excess of $100,000

bank underwritten issues is $1215.4 million). Since LPC identifies loans made to large firms, the probability that a bank-underwritten issue was not identified correctly as having a lending relationship through LPC should be low.[27] Second, even if certain issues were incorrectly classified as not having a lending relationship with the underwriter, this misclassification should bias our tests against finding significant differences for the lending samples, compared to the non-lending samples in both the underpricing and gross spread regressions.

Nevertheless, as a robustness check, we repeat all our analyses by restricting our SEO sample to only those issuing firms that we could identify as having loans from LPC.[28] For these 1170 firms, we can be certain of the presence of a lending relationship with the underwriting bank. Table 10 presents the results of the regressions on underpricing while Table 11 presents the results of the regressions on gross spreads. The results from this restricted sample of issues qualitatively mirror those obtained using the original sample of issues. Most importantly, in regression III of Table 10, the LEND variable is a statistically significant 0.035, indicating that issues lead managed by lending banks suffer a lemons discount due to perceptions of conflict of interest. Additionally, the LEND&COM variable is a statistically significant -0.035 suggesting that when lending banks credibly commit against perceptions of opportunistic behavior by co-managing the issue with an independent lead manager they obtain a higher price (lower underpricing) neutralizing the lemons discount that would be otherwise imposed if they were to lead manage the issue. The insignificant variable NOLEND&COM in regression IV of Table 10 suggests that such a pricing difference is not observed when the firm has no lending relationship with the underlying bank (no conflict of interest). In the gross spread regressions of Table 11, both the LEND and LEND&COM variables (regression III) are insignificant, suggesting that the lower spreads do not compensate for the higher underpricing observed with bank lend and lead managed issues.

## 6. Conclusion

The perception that commercial banks face a conflict of interest when they lend to and underwrite for the same firm impairs their ability to offer underwriting services (effectively certify the issues they bring to the market). We show that banks through their choice of syndicate role credibly commit against opportunistic behavior improving their effectiveness in the

[27] The mean market capitalization of the issuing firms identified as having a lending relationship through LPC is $967.9 million. The corresponding value for firms that we couldn't identify any lending relationships through LPC is $681.4 million. The difference is statistically significant at the 5% level.

underwriting market. By co-managing an issue of a firm they lend to with another high reputation, non-lending underwriter, banks obtain independent certification (and hence higher prices) of the issue. The additional advantage of such a syndicate arrangement is that the potential advantages associated with having a lending relationship (due to information reusability) can be realized as evidenced by lower gross spreads on bank underwritten issues relative to investment banks. The broader implication of this finding is that private market solutions do exist to potential conflicts of interest and that regulatory concerns about market failure or naïve investors associated with Glass-Steagall relaxations are unsubstantiated.

[28] As described in section 2.1, from our original sample of 2317 SEOs, we identified 1170 firms as having an outstanding loan with a bank as of the date the issue was registered with the SEC from LPC.

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## TABLE 1: Bank Involvement in Seasoned equity offerings: 1994-97

A commercial bank underwriting is defined to be one where the Bank Holding Company's Section 20 Security affiliate assumes the role of either a lead manager, joint lead manager (if more than one lead manager) or co-manager of the issue.
If the Section 20 underwriter's parent bank has an outstanding lending exposure with the issuing firm as of the date the issue is registered with the SEC, then the issue is classified as a bank lending and underwriting issue.

**Sample breakdown by identity of the Underwriter**

| Bank Involvement | 1994 | 1995 | 1996 | 1997 | Total |
|---|---|---|---|---|---|
| Number of SEOs | 352 | 571 | 711 | 683 | 2317 |
| Bank Underwriting | 27 | 44 | 71 | 158 | 300 |
| Non-Bank Underwritings | 325 | 527 | 640 | 525 | 2017 |
| Bank Lending and Underwriting | 4 | 6 | 15 | 25 | 50 |

## TABLE 2: Descriptive Statistics

A commercial bank underwriting is defined to be one where the Bank Holding Company's Section 20 Security affiliate assumes the role of either a lead manager, joint lead manager (if more than one lead manager) or co-manager of the issue.

Market Capitalization is computed as of close on the day prior to the issue. Values reported in the table are in millions.

Offer size is the dollar value of the equity offering reported in the table in millions.

Underpricing is computed as the return from buying at the offer price and selling as of close on the day of the offer

Gross spread is the sum of the underwriting fee, management fee and selling concession per share divided by the offer price.

Values reported in the table are the gross spreads per dollar offered.

| | All Issues | | Bank Underwritings | | Non-Bank Underwritings | |
|---|---|---|---|---|---|---|
| | Mean | Median | Mean | Median | Mean | Median |
| Market Capitalization ($ millions) | 829.7 | 269.6 | 1215.4 | 396.5 | 773.61** | 255.59*** |
| Offer size ($ millions) | 95.8 | 56.1 | 150.0 | 89.6 | 87.7*** | 53.5*** |
| Underpricing (%) | 2.86 | 1.09 | 2.17 | 0.80 | 2.96* | 1.11 |
| Gross Spread (%) | 5.17 | 5.23 | 4.86 | 5.0 | 5.22*** | 5.25*** |
| No. of issues | 2317 | | 300 | | 2017 | |

*** Significantly different from the Bank underwriting sample at the 1% level
** Significantly different from the Bank underwriting sample at the 5% level
* Significantly different from the Bank underwriting sample at the 10% level

## TABLE 3: Bank Underwriting and Syndicate Role

A commercial bank underwriting is defined to be one where the Bank Holding Company's Section 20 Security affiliate assumes the role of either a lead manager, joint lead manager (if more than one lead manager) or co-manager of the issue.
If the Section 20 underwriter's parent bank has an outstanding lending exposure with the issuing firm as of the date the issue is registered with the SEC, then the issue is classified as a bank lending and underwriting issue.
The lead manager of an issue takes the lead in managing the syndicate, dealing with the issuer and running the books. A co-manager of an issue, along with the lead manager, is responsible for originating the issue. Bank Underwriters are classified as lead managers or co-managers based on underwriter classification in the Securities Data Corporation new issues database.

Entries in cells represent number of issues underwritten by Section 20 security affiliates of banks.

**Panel A: Annual Breakdown of Bank Underwriting sample by syndicate role**

| Lending Relationship | Syndicate Role | 1994 | 1995 | 1996 | 1997 | Total |
|---|---|---|---|---|---|---|
| Lend | Lead Manager | 1 | 2 | 0 | 5 | 8 |
| | Co-Manager | 3 | 4 | 15 | 20 | 42 |
| | Both | 0 | 0 | 0 | 0 | 0 |
| No-Lend | Lead Manager | 9 | 15 | 17 | 55 | 96 |
| | Co-Manager | 15 | 24 | 45 | 85 | 169 |
| | Both | 1 | 1 | 6 | 7 | 15 |

**Panel B: Contingency Table**

**Syndicate Role**

| | | Lead Manage | Co-manage | Total |
|---|---|---|---|---|
| **Lending Relationship** | **Lend** | 8 | 42 | **50** |
| | **No-Lend** | 96 | 169 | **265** |
| | **Total** | **104** | **211** | **315** |

$\chi^2$ statistic for the test that population proportions of lead manage to co-manage are the same for the lend and no-lend groups is 14.15. The one-tail critical value at the 1% level is 6.635.

## TABLE 4: Bank Underwriting and Syndicate Role - Logit Estimation

A commercial bank underwriting is defined to be one where the Bank Holding Company's Section 20 Security affiliate assumes the role of either a lead manager, joint lead manager (if more than one lead manager) or co-manager of the issue.
If the parent Bank Holding Company of the Section 20 subsidiary underwriting the issue has a sole or lead lending relationship (if the loan is syndicated) with the issuer as of the date the issue is registered with the SEC, then the issue is classified as a bank lending and underwriting issue.
The lead manager of an issue takes the lead in managing the syndicate, dealing with the issuer and running the books. A co-manager of an issue, along with the lead manager, is responsible for originating the issue. Bank Underwriters are classified as lead managers or co-managers based on underwriter classification in the Securities Data Corporation new issues database.

The dependent variable is a dummy that takes on the value of 1 if the commercial bank is a lead manager of the issue and 0 otherwise.

Independent variables:
RELOFFSZ: Relative offer size, measured as the ratio of the dollar value of the offer to the issuing firms' market capitalization as of close on the day prior to the offer.
BANKREP: Bank underwriter reputation, computed as the market share of the bank underwriter in the market for seasoned equity offering in the year prior to the offer.
LEND: A dummy variable, which takes on a value of 1 if the underwriting bank has a lending relationship with the issuing firm; 0 otherwise.

Values reported are coefficients obtained through maximum likelihood estimation. Standard errors are presented in parentheses below the coefficient values.

| Independent Variable | Coefficient (std. error) |
|---|---|
| RELOFFSZ | -1.136<br>(.704) |
| BANKREP | 0.008<br>(0.094) |
| LEND | -1.280***<br>(0.435) |
| Constant | -0.238<br>(0.229) |
| Log Likelihood | -167.198 |
| Pseudo R squared | 0.043 |
| # of obs. | 272 |

*** Significant at the 1% level
** Significant at the 5% level
* Significant at the 10% level

## TABLE 5: Lead Manager Reputation when Banks Assume a Co-Manager Role

A commercial bank underwriting is defined to be one where the Bank Holding Company's Section 20 Security affiliate assumes the role of either a lead manager, joint lead manager (if more than one lead manager) or co-manager of the issue.
If the parent Bank Holding Company of the Section 20 subsidiary underwriting the issue has a sole or lead lending relationship (if the loan is syndicated) with the issuer as of the date the issue is registered with the SEC, then the issue is classified as a bank lending and underwriting issue.
A Securities affiliate of a Bank Holding Company is classified as a lead manager of an issue, if it takes the lead in managing the syndicate, dealing with the issuer and running the books or as a co-manager of an issue if it, along with the lead manager, is responsible for originating the issue.

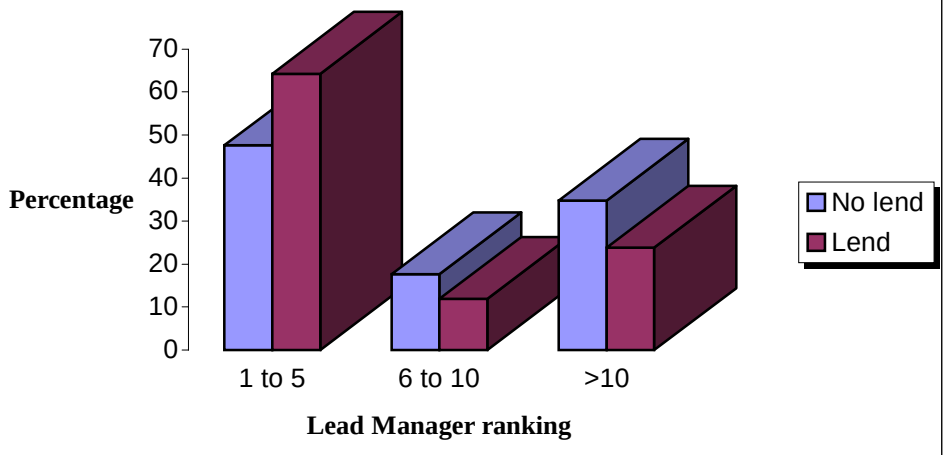
Lead manager rankings based on market share for the years 1993 to 1996 are obtained from Securities Data Corporation. The lead manager ranking from 1 to 10 is as follows: Merrill Lynch, Goldman Sachs, Salomon Smith Barney, Morgan Stanley Dean Witter, Credit Suisse First Boston, Lehman Brothers, Donaldson Lufkin Jeanerette, Banc of America, Deutsche Bank, and Paine Webber.

**Panel A: Summary Statistics of Lead Manager Market Share**

| Bank Underwriting | N | Mean of Lead Manager Market Share | Difference in means |
|---|---|---|---|
| No-Lend Co-manage | 169 | 7.01 | -1.62* |
| Lend Co-manage | 42 | 8.64 | |

- *** Significant at the 10% level (one tail test)**

**Panel B : Distribution of Lead Manager Rankings when the Commercial Bank takes a Co-manager position**



## TABLE 6: Univariate tests of Bank-Underwritten Equity Offer Pricing

A commercial bank underwriting is defined to be one where the Bank Holding Company's Section 20 Security affiliate assumes the role of either a lead manager, joint lead manager (if more than one lead manager) or co-manager of the issue.
If the parent Bank Holding Company of the Section 20 subsidiary underwriting the issue has a sole or lead lending relationship (if the loan is syndicated) with the issuer as of the date the issue is registered with the SEC, then the issue is classified as a bank lending and underwriting issue.
If the lead bank underwriting the issue also has a lending exposure with the issuing firm, then the issue is classified as "*lend-lead*".
If the underwriting bank is a co-manager of the issue and has a lending exposure with the issuing firm, then the issue is classified as a "*lend-co-manage*".
If the lead bank underwriting the issue has no lending exposure with the issuing firm, then the issue is classified as "*no lend-lead*".
If the underwriting bank is a co-manager of the issue and has no lending exposure with the issuing firm, then the issue is classified as a "*no lend-co-manage*".

Issue underpricing (*undprc*) is measured as the return from buying at the offer price and selling at the close price on the day of the offer.

**Panel A: No Bank Lending Sample**

| Bank Underwriting | N | Mean Undprc (%) | Difference in means |
|---|---|---|---|
| No-Lend Lead | 92 | 2.70*** | 0.7 |
| No-Lend Co-manage | 152 | 1.97*** | |

**Panel B: Bank Lending Sample**

| Bank Underwriting | N | Mean Undprc (%) | Difference in means |
|---|---|---|---|
| Lend Lead | 8 | 4.1** | 2.78** |
| Lend Co-manage | 42 | 1.3*** | |

***** Significant at the 1% level**
**** Significant at the 5% level**

## TABLE 7: Underpricing Regressions

The dependent variable is the issue underpricing (*undprc*) is measured as the return from buying at the offer price and selling at the close price on the day of the offer.

Independent variables:
RELOFFSZ: Relative offer size, measured as the ratio of the dollar value of the offer to the issuing firms' market capitalization as of close on the day prior to the offer.
LNMKT: Natural logarithm of the market capitalization of the issuing firm as of close on the day prior to the offer.
UNDREP: Underwriter reputation, computed as the market share of the lead underwriter in the market fro seasoned equity offering in the year prior to the offer.
BANK: A dummy variable, which takes on the value 1 if the issue is underwritten by a bank,; 0 otherwise.
LEND: A dummy variable, which takes on a value of 1 if the underwriting bank has a lending relationship with the issuing firm; 0 otherwise.
NOLEND: A dummy variable, which takes on a value of 1 if the underwriting bank does not have a lending relationship with the issuing firm; 0 otherwise.
LEND&COM: A dummy variable, which takes a value of 1 if the underwriting bank is a co-manager of the issue and has a lending relationship with the issuing firm; 0 otherwise.
NOLEND&COM: A dummy variable, which takes a value of 1 if the underwriting bank is a co-manager of the issue and does not have a lending relationship with the issuing firm; 0 otherwise.

Values reported are coefficients from Ordinary Least Square regressions. Standard errors are presented in parentheses below coefficient values.

| | I | II | III | IV |
|---|---|---|---|---|
| RELOFFSZ | -0.0002 | -0.0001 | -0.0001 | -0.0001 |
| | (.003) | (0.003) | (0.003) | (0.003) |
| LNMKT | -0.0103*** | -0.0104*** | -0.0105*** | -0.0105*** |
| | (0.001) | (0.002) | (0.002) | (0.002) |
| UNDREP ($*10^{-2}$) | -0.0465** | -0.0467** | -0.0444** | -0.0481** |
| | (0.021) | (0.021) | (0.021) | (0.021) |
| BANK | -.0009 | -0.0017 | -0.0017 | -0.0037 |
| | (.002) | (-0.002) | (0.002) | (0.003) |
| LEND | | 0.0070 | 0.0397** | |
| | | (0.006) | (0.018) | |
| NOLEND | | | | -0.0094 |
| | | | | (0.006) |
| LEND & COM | | | -0.0375** | |
| | | | (0.019) | |
| NOLEND&COM | | | | 0.0040 |
| | | | | (0.005) |
| YEAR 95 | 0.0086** | 0.0087*** | 0.0088*** | 0.0088*** |
| | (0.004) | (0.004) | (0.004) | (0.004) |
| YEAR 96 | 0.0078** | 0.0077** | 0.0080** | 0.0077** |
| | (0.004) | (0.004) | (0.004) | (0.004) |
| YEAR 97 | -0.0002 | -0.0001 | -0.0000 | -0.0002 |
| | (0.003) | (0.003) | (0.003) | (0.003) |
| Constant | 0.2264*** | 0.2281*** | 0.2292*** | 0.2379*** |
| | (0.031) | (0.032) | (0.032) | (0.033) |
| R-square | 0.0582 | 0.0584 | 0.0592 | 0.0585 |
| # of obs. | 2127 | 2127 | 2127 | 2127 |

*** Significant at the 1% level
** Significant at the 5% level
* Significant at the 10% level

## TABLE 8: Univariate Tests of Gross Spreads

A commercial bank underwriting is defined to be one where the Bank Holding Company's Section 20 Security affiliate assumes the role of either a lead manager, joint lead manager (if more than one lead manager) or co-manager of the issue.
If the parent Bank Holding Company of the Section 20 subsidiary underwriting the issue has a sole or lead lending relationship (if the loan is syndicated) with the issuer as of the date the issue is registered with the SEC, then the issue is classified as a bank lending and underwriting issue.
If the lead bank underwriting the issue also has a lending exposure with the issuing firm, then the issue is classified as "*lend-lead*".
If the underwriting bank is a co-manager of the issue and has a lending exposure with the issuing firm, then the issue is classified as a "*lend-co-manage*".
Gross spread (GSPREAD) is the sum of the underwriting fee, management fee and selling concession per share divided by the offer price.

**Panel A: Entire Sample**

| | N | Mean GSPREAD (%) | Difference |
|---|---|---|---|
| Non-Bank Underwritings | 1951 | 5.22*** | |
| Bank Underwritings | 292 | 4.86*** | 0.36*** |

**Panel B: Bank Underwriting Sample**

| Bank Underwriting | N | Mean GSPREAD (%) | Difference |
|---|---|---|---|
| No-Lend | 243 | 4.97*** | |
| Lend | 49 | 4.29*** | 0.69*** |

**Panel C: Bank Underwriting and Lending Sample**

| Bank Underwriting | N | Mean GSPREAD (%) | Difference |
|---|---|---|---|
| Lend and Lead | 7 | 4.17*** | |
| Lend and Co-manage | 42 | 4.31*** | -0.14 |

*** Significant at the 1% level
** Significant at the 5% level

## TABLE 9: Gross Spread Regressions

The dependent variable is the gross spread (GSPREAD) measured as the sum of the underwriting fee, management fee and selling concession per share divided by the offer price.

Independent variables:
OFFSZ: The dollar value of the offer.
BANK: A dummy variable, which takes on the value 1 if the issue is underwritten by a bank,; 0 otherwise.
LEND: A dummy variable, which takes on a value of 1 if the underwriting bank has a lending relationship with the issuing firm; 0 otherwise.
LEND&COM: A dummy variable, which takes a value of 1 if the underwriting bank is a co-manager of the issue and has a lending relationship with the issuing firm; 0 otherwise.

Values reported are coefficients from Ordinary Least Square regressions. Standard errors are presented in parentheses below coefficient values.

| | I | II | III |
|---|---|---|---|
| OFFSZ ($*10^{-9}$) | -4.03*** (0.423) | -4.00*** (0.423) | -4.00*** (0.423) |
| BANK | -0.0992* (0.056) | -0.0400 (0.0611) | -0.04000 (0.0611) |
| LEND | | -0.3631*** (0.126) | -0.5585* (0.325) |
| LEND&COM | | | 0.2280 (0.330) |
| Constant | 5.576*** (0.045) | 5.574*** (0.045) | 5.574*** (0.045) |
| R-square | 0.2285 | 0.2300 | 0.2301 |
| # of obs. | 2243 | 2243 | 2243 |

*** Significant at the 1% level
** Significant at the 5% level
* Significant at the 10% level

## TABLE 10: Robustness Tests using the Loan Pricing Corporation Sample - Underpricing Regressions

The dependent variable is the issue underpricing (*undprc*) is measured as the return from buying at the offer price and selling at the close price on the day of the offer.

Independent variables:
RELOFFSZ: Relative offer size, measured as the ratio of the dollar value of the offer to the issuing firms' market capitalization as of close on the day prior to the offer.
OFFSZ: The dollar value of the offer.
LNMKT: Natural logarithm of the market capitalization of the issuing firm as of close on the day prior to the offer.
UNDREP: Underwriter reputation, computed as the market share of the lead underwriter in the market fro seasoned equity offering in the year prior to the offer.
BANK: A dummy variable, which takes on the value 1 if the issue is underwritten by a bank,; 0 otherwise.
LEND: A dummy variable, which takes on a value of 1 if the underwriting bank has a lending relationship with the issuing firm; 0 otherwise.
NOLEND: A dummy variable, which takes on a value of 1 if the underwriting bank does not have a lending relationship with the issuing firm; 0 otherwise.
LEND&COM: A dummy variable, which takes a value of 1 if the underwriting bank is a co-manager of the issue and has a lending relationship with the issuing firm; 0 otherwise.
NOLEND&COM: A dummy variable, which takes a value of 1 if the underwriting bank is a co-manager of the issue and does not have a lending relationship with the issuing firm; 0 otherwise.

Values reported are coefficients from Ordinary Least Square regressions. Standard errors are presented in parentheses below coefficient values.

| | I | II | III | IV |
|---|---|---|---|---|
| RELOFFSZ | 0.0029 | 0.0028 | 0.0027 | 0.0028 |
| | (0.006) | (0.006) | (0.006) | (0.006) |
| LNMKT | -0.0079*** | -0.0080*** | -0.0081*** | -0.0081*** |
| | (0.002) | (0.002) | (0.002) | (0.002) |
| UNDREP (*$10^{-2}$) | -0.0701*** | -0.0698*** | -0.0661*** | -0.0708*** |
| | (0.019) | (0.019) | (0.019) | (0.019) |
| BANK | -0.0036 | -0.0017 | -0.0015 | -0.0037 |
| | (0.003) | (0.004) | (0.004) | (0.007) |
| LEND | | 0.0047 | 0.0351* | |
| | | (0.006) | (0.019) | |
| NOLEND | | | | -0.0069 |
| | | | | (0.008) |
| LEND & COM | | | -0.0350* | |
| | | | (0.019) | |
| NOLEND&COM | | | | 0.0029 |
| | | | | (0.009) |
| YEAR 95 | 0.001 | 0.0010 | 0.0016 | 0.0013 |
| | (0.004) | (0.005) | (0.005) | (0.005) |
| YEAR 96 | 0.0029 | 0.0029 | 0.0035 | 0.0029 |
| | (0.004) | (0.004) | (0.004) | (0.004) |
| YEAR 97 | -0.0069 | -0.0069 | -0.0066 | -0.0069 |
| | (0.004) | (0.004) | (0.004) | (0.004) |
| Constant | 0.1867*** | 0.0883*** | 0.1903*** | 0.1952*** |
| | (0.046) | (0.046) | (0.046) | (0.049) |
| R-square | 0.0762 | 0.0765 | 0.0789 | 0.0766 |
| # of obs. | 1100 | 1100 | 1100 | 1100 |

## TABLE 11: Robustness Tests using the Loan Pricing Corporation Sample - Gross Spread Regressions

The dependent variable is the gross spread (GSPREAD) measured as the sum of the underwriting fee, management fee and selling concession per share divided by the offer price.

Independent variables:
OFFSZ: The dollar value of the offer.
BANK: A dummy variable, which takes on the value 1 if the issue is underwritten by a bank,; 0 otherwise.
LEND: A dummy variable, which takes on a value of 1 if the underwriting bank has a lending relationship with the issuing firm; 0 otherwise.
LEND&COM: A dummy variable, which takes a value of 1 if the underwriting bank is a co-manager of the issue and has a lending relationship with the issuing firm; 0 otherwise.

Values reported are coefficients from Ordinary Least Square regressions. Standard errors are presented in parentheses below coefficient values.

| | I | II | III |
|---|---|---|---|
| OFFSZ ($*10^{-9}$) | -3.82*** | -3.79*** | -3.79*** |
| | (0.367) | (0.367) | (0.367) |
| BANK | -0.0338 | 0.0423 | 0.0424 |
| | (-0.066) | (0.076) | (0.076) |
| LEND | | -0.2468** | -0.4381 |
| | | (0.124) | (0.320) |
| LEND&COM | | | 0.2232 |
| | | | (0.326) |
| Constant | 5.331*** | 5.328*** | 5.328*** |
| | (0.049) | (0.049) | (0.049) |
| R-square | 0.2486 | 0.2502 | 0.2504 |
| # of obs. | 1122 | 1122 | 1122 |

*** Significant at the 1% level
** Significant at the 5% level
* Significant at the 10% level