Commercial Bank Underwriting of Credit-Enhanced Bonds:

Are there Benefits to the Issuer?[*]

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ABSTRACT

Recent studies have expanded the commercial bank certification hypothesis to include banks acting in an underwriting capacity. This paper further develops that research by focusing on the industrial revenue bond market in which banks have the unique opportunity to simultaneously act as both credit guarantor and underwriter. When explicitly allowing for bank-issued standby letters of credit (guarantees), we find significantly greater yield spreads for those bonds underwritten by commercial banks compared to bonds underwritten by investment banks. Overall, no net benefit appears to accrue to the bond issuer when attempting to achieve joint (or double) certification benefits by employing commercial banks as both credit guarantor and underwriters except in the special case where the same bank acts as both guarantor and underwriter. This latter result is consistent with an "economy of scope" in monitoring and reusing information.

Commercial Bank Underwriting of Credit-Enhanced Bonds:
A Testing of Joint Certification

Regulatory constraints on investment banking activities have severely limited the

opportunity for studying the role of commercial banks as security underwriters in the United States.

Nevertheless, the general findings to date suggest that smaller-sized firms that issue lower quality

debt benefit most by having an underwriting relationship with a commercial bank. Specifically,

Puri (1996) finds that commercial bank underwritings of corporate bonds, in the pre-Glass-Steagall

Act period, resulted in better pricing for smaller and lower credit- rated issuers than similar issues

underwritten by investment banking firms. Gande, Puri, Saunders and Walter (1997) draw similar

conclusions for bond offerings in the post-1987 period, when banks were allowed to use their

Section 20 securities subsidiaries to engage in corporate bond underwritings. This study expands on

the above research by examining the potential benefits, in terms of issuance costs, that (may) occur

when commercial banks simultaneously act as both credit guarantor and underwriter in municipal

bond financing transactions.

Commercial banks are unique participants in the industrial revenue (and pollution control)

bond primary market as they frequently issue standby letters of credit, as a means of credit

enhancement (or guarantee), as well as underwriting the actual bond offering itself. As a result, the

issuance of a standby letter of credit backing by a bank might be viewed as a positive signal

regarding the quality of the borrower since the bank's issuance of the guarantee can be viewed as

certification of the borrower's credit quality. Similar certification effects have been found with new

loans and loan renewals (i.e. see James, 1987, for example).   Indeed, the municipal revenue bond

market is well recognized for its high degree of information asymmetry among issuers and investors

Consequently, such certification services may be viewed as highly valuable.[1] In addition,

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[1] See Robbins, Apostolou, and Stawser (1985) and Ingram, Raman, and Wilson (1989).

commercial banks concerned about reputation may also bring certification benefit to the issuer through the underwriting process (see Puri (1996) for example). To examine the benefits of "double" certification, that is to examine the benefit to the issuer from using commercial banks as both letter of credit guarantors and underwriters, a sample of industrial revenue bond issues offered during the 1987-1998 period were segmented into a sub-samples containing those bonds with (without) letter of credit backing and underwritten by investment banks, and bonds with (without) letter of credit backing and underwritten by commercial banks. Using these sample partitions, as well as identifying sub-samples where the <u>same</u> bank offered both services (as opposed to different banks offering the two services separately), the empirical tests focus on the market's response to the type of underwriting. The market's response is measured by the size of the tax adjusted reoffering yields achieved by the issuer relative to matched maturity U.S. Treasury securities.

Since a standby letter of credit-backed bond is essentially a transaction-based loan in which a bank's guarantee provision cannot be inferred as indicative of a long-term banking relationship, and thus a long term monitoring (relationship) role, any certification benefit may be small.[2] Indeed, if the market only reacts favorably to the credit provision (contingent or otherwise) via a long-term lending relationship (and the monitoring role that this implies), there may be little significant difference between yields on bonds backed by standby letters of credit and those without such credit enhancement. Of course, the market may still view the guarantee favorably, irrespective of the degree of monitoring of the guarantee provider (the bank), as long as the credit quality of the guarantee provider is superior to that of the bond issuer. In this case, a positive spread saving should be observed between those issues utilizing guarantees and those not utilizing guarantees. In other words, the pure "insurance role" of guarantees would dominate the absence of benefits from any long term bank monitoring.

In addition to the certification effect inherent in the decision to employ a standby letter of credit, the municipality must also choose among alternative underwriting options. In particular, a municipality's choice-set of underwriter includes both traditional investment banking firms and commercial banks. Controlling for the guarantee effects of letters of credit, we examine the relative degree to which the reputation of the commercial bank and investment banker adds to the value of an issue via reoffering yield spreads. Indeed, in bringing an issue to market, the underwriter (whether an investment bank or commercial bank) will carry out information collection activities. In part, the reputation of the underwriter reflects the quality of this information monitoring and collection function over time.

The remainder of the paper proceeds as follows. Section 2 briefly describes the industrial revenue bond market. Section 3 presents data and the basic empirical model. Section 4 discusses the empirical results. Finally, Section 5 provides a summary and conclusions.

2. Industrial Revenue Bond Market

Industrial revenue bonds provide a means of tax exempt financing that has been used by a variety of corporations to fund the construction or acquisition of projects. Some form of governmental unit, ranging from a city to an issuing authority, provides the conduit through which the municipality issues the bonds on behalf of the corporation. In turn, the corporation pledges to pay the interest and principal on the bond usually in the form of a lease or loan agreement between the corporation and the issuing organization. In lease arrangements, rental payments are used to make the required debt interest and principal payments. The lease/purchase format allows the corporation to take advantage of applicable depreciation guidelines (and tax credits) as well as being able to deduct interest payments as a business expense. When bonds are paid off, a corporation may assume title to the project itself for a nominal fee. The underlying legal

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[2] See Berger and Udell (1995).

agreement with the municipality is typically at the corporate level, as opposed to the project

(bond) level, which places bondholders in an unsecured position against the revenues of the

corporation. Additional security in the form of mortgage liens on the underlying project property

or relet provisions under a lease agreement often enhance the bond's structure.[3]

This form of tax exempt debt exhibits certain features. The interest rate may range from a

seven-day variable rate to a long-term fixed rate for 15-20 year maturities. Corporate backed issues

typically trade at higher taxable equivalent yields than similar unsecured taxable debt of the same

corporation. Principal repayment terms are often flexible and are structured to fit the unique cash

flows of the company. The bonds are usually not callable for a minimum of three years.

Particularly, when the industrial revenue bonds are publicly traded, a commercial bank may

provide credit enhancement via a standby letter of credit. The letter of credit provides additional

security to the bond investor. The bank substitutes its credit worthiness for that of its client (the

issuer) to increase the attractiveness of the offering. With the employment of the standby letter, the

company agrees, under a reimbursement agreement, to repay the bank for any draw-downs under

the letter of credit agreement. The bank may also designate whether additional collateral is required

as security. Typically, the commercial bank issuing the standby letter must be rated investment

grade or better. Moreover, the bank providing the letter of credit is often _not_ the underwriter, i.e.,

the bond is underwritten by another bank (investment or commercial).

Table 1 illustrates the relative importance of net issues in the municipal bond market in the

context of all the other forms of public and private debt in the United States over the 1989-1998

period. Until recently, the Treasury securities market represented the largest segment of the new

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[3] This study does not explicitly allow for such internal credit enhancements for two reasons. First, such information is not generally available from the sources employed. Second, the specific value of such credit enhancements are difficult to measure because their respective values depend on the economic value of the asset, the transferability of the asset's use and the location of the asset.

issue debt market. However, reflecting, among other things federal budget surpluses, the net size of

the Treasury bond market is actually declining. The average net funds raised in the municipal bond

market totaled $38.55 billion per year over the 1989-1998 period.

<div align="center">(Insert Table 1)</div>

3. **Sample and Empirical Methodology**

    A. Sample of Industrial Revenues Bonds

        The sample of industrial revenue and pollution control bonds for this study were selected

from all issues reported by Moody's Bond Record for the period 1987-1998.[4]   Before the late

1980's, few industrial revenue or pollution control bonds were supported by standby letters of

credit and/or underwritten by commercial banks. Development of the sample began by

identifying those issues with fixed coupon rates for the life of the bond. Thus, both floating and

variable coupon bonds were excluded. We also excluded those issues for which a complete set

of variables required for the yield spread tests were unavailable. The required variables included

the tax adjusted premium (spread) between the municipal bond reoffering yield and a

comparable maturity U.S. Treasury security, issue size, maturity, identification of the lessee,

letter of credit issuing bank, underwriting firm, the maturity of the line of credit, and bond rating.

The Appendix to the paper presents the sources of data and the approach used to measure the tax

adjusted yield spread or premium.

        The final sample consisted of 1003 issues. Sub-samples include 665 issues which had no

standby letter of credit backing and were underwritten by a traditional investment banker, 146 in

which a commercial bank had issued the standby letter of credit but a traditional investment

banker underwrote the offering, 82 issues in which commercial banks issued the standby letter of

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[4] In 1987, the Federal Reserve specifically allowed Section 20 subsidiaries of commercial bank holding
companies to underwrite municipal revenue bonds.

credit but also underwrote the issue and finally, 110 issues in which there was no line of credit but a commercial bank underwrote the offering. Of the 82 issues in which commercial banks provided both services, a total of thirty-six issues employed the <u>same</u> commercial bank in both functions. Finally, there was no discernable trend over the period of our study in the frequency of commercial bank versus investment bank underwritings or in the proportion of sample bond offerings with standby letter of credit backing.

B. Empirical Tests and Model Parameters

Our first test is to examine whether offering spreads differentiate between those issues underwritten by commercial banks and those by investment banks. Subsequent tests examine whether a commercial bank and investment banker's reputation has a significant impact on the determination of offering spreads. This is examined both with and without the letter of credit variable in the model. Finally, employing the sample in which the <u>same</u> bank provided both the letter of credit and underwriting services, we explicitly test the tradeoff between joint certification benefits and any possible conflict of interest effects when the same bank provides both services for the issuer.[5]

The dependent variable, PREMIUM, is the yield on the municipal bond minus the yield to maturity for a comparable maturity U.S. government bond issued in the same month. The Appendix explains how tax adjustments are made to both securities to present them on a comparable "yield" basis. Determinants of the yield spread are assumed to be those variables specified on the right hand side of equation (1) and described below:

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[5] Such conflicts may be driven by banks seeking to boost their "fee income" and current earnings.

$$\text{PREMIUM} = \beta_0 + \beta_1\text{BANK} + \beta_2\text{LETTER} + \beta_3\text{RATING} + \beta_4\text{SIZE} +$$

$$\beta_5\text{MATURITY} + \beta_6\text{LIST} + \beta_7\text{PREVIOUS} + \beta_8\text{REPUTATION} +$$

$$\beta_9\text{SUPPLY} + \beta_{10}\text{TRATE} + \varepsilon \tag{1}$$

in which:

PREMIUM	Stated tax adjusted yield to maturity of the municipal bond minus the yield to maturity on U.S. government bond of nearest maturity issued in the same month. (see Appendix)
LETTER	A binary variable that assumes a value of 1 if the bond is backed by a commercial bank letter of credit and 0 if not.
RATING	Moody's credit rating equal to 20 for AAA-rated bonds; 19 for AA1, and so on.
SIZE	The $ size of the issue in millions.
MATURITY	Number of months to maturity.
LIST	A binary variable that assumes a value of 1 for those issuers (lessees) that are listed on a stock exchange and 0 if otherwise.
PREVIOUS	A binary variable equal to 1 if the municipal entity has issued the same type of security before and 0 if otherwise.
REPUTATION	The reputation of the investment banker underwriting the bond based on average level of co-managed or managed underwriting of industrial revenue bond offerings. For commercial banks, the measure is a binary variable that assumes a value of 1 if the issuing entity is a Section 20 subsidiary and 0 if otherwise.
SUPPLY	Volume of revenue bonds sold in same month as sample.
TRATE	U.S. Treasury bond rate for issue comparable in maturity to that of the sample offering.

The first variable, RATING, is the Moody's bond rating measured according to the scale

employed by Barclay and Smith (1995) and Billett, Flannery, and Garfinkel (1995).[6] This variable

is orthogonalized by employing the residual from the regression of RATING on the LETTER and

TRATE variables. Controlling for LETTER allows us to measure the independent credit

assessment effect of the rating agencies while controlling for TRATE reflects the findings of Duffee

(1998) and Longstaff and Schwartz (1995) that the yield spreads on corporate bonds, over

comparable maturity Treasury securities, fall when the Treasury bill rates rise. (Longstaff and

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[6] These values are 20(AAA), 19(AA1), 18 (AA2), 17(AA3), 16(A1), 15(A2), 14(A3), 13(BBB1),

Schwartz conclude that such a relationship can be attributed to the negative correlation between firms' asset values and default-free interest rates.) The LETTER variable is also orthogonalized by using the residual from the regression of LETTER on the issue size, maturity and previous issue variables to recognize the impact that the latter variables may have on the decision of the firm to utilize a letter of credit.[7]

The model employs the size of the offering, SIZE, as a measure of marketability and potential scale economies in the underwriting process. The coefficient for MATURITY, the natural log of bond years to maturity, is expected to be positive due to the typically positive yield curve for municipal bond yields. Puri (1996) included a binary variable to recognize whether the offering was considered a new issue. Thus, the variable, PREVIOUS, is set equal to one if, according to Moody's Bond Record, no other offering was made by the issuer in the past with the same characteristics and zero otherwise. This distinction is based on a review of Moodys Bond Record for the 25 years prior to each offering in the sample. The variable, SUPPLY, measures the volume of revenue bond offerings in the same month as the sample debt offering according to the *Federal Reserve Bulletin*. The level of the U.S. Treasury security rate is included based on the findings of both Duffee (1998) and Longstaff and Scwartz (1995). We employ the variable, LIST, as a proxy for the degree of public information regarding the borrowers, which is equal to one if the lessee is a publicly traded company and zero otherwise.

12(BBB2), 11(BBB3), 10(BB1), and 9(BB2). None of the ratings were below BB.
[7] The regression results are not reported. They are available from the authors upon request.

In previous research, different measures of reputation have been employed. Carter and Manaster (1990) used the relative placement of underwriters in (stock offering) tombstone announcements. In contrast, Megginson and Weiss (1991) used the relative market share of managing underwriters as their reputation measure. This study employs the latter approach for the subsample of bonds underwritten by investment banks. Using the *Securities Industry Yearbook*, the underwriting firms are ranked according to the percentage of yearly volume of municipal debt offerings in which the investment banker either sole or co-managed the offering. Following the approach of Carter, Dark, and Singh (1997), the reputation measure is averaged over the measurement period.   Similar information is not readily available to gauge the reputation of commercial banks as municipal bond underwriting firms. We use, as a proxy measure of reputation, the number of years that the bank's parent holding company operated a Section 20 subsidiary with the power to underwrite municipal debt securities. This variable is formed by the interaction between the dichotomous variable equal to one if the holding company has a Section 20 subsidiary and zero if not times the number of months between the date it was established and the month of the revenue bond offering.

3. Empirical Results

Table 2 first reports the t-tests of differences in means for the continuous variables shown in Equation (1). Specifically, Table 2 shows that the yield spread for commercial bank underwritings were on average 1.71 basis points higher than those for investment bank offerings (i.e., 33.15 bp versus 31.44bp). Interestingly, the highest spreads of all are when commercial banks acted as both underwriters and guarantors (35.35 bp). This compares to the lowest spreads which are investment bank underwritten issues that have letter of credit guarantees (22.49 bp). Overall, standby letter of credit backing appears to lower spreads by just under 5 bp. The

univariate results of Table 2 clearly question the presence of a benefit from employing

commercial banks as both underwriters and guarantors. Indeed, as noted above, issuers

employing commercial banks to provide both services (Column 3, Table 2) appear to have the

highest yield spreads analyzed on a univariate basis.   With respect to the independent variables

in Equation (1), the bond offerings underwritten by commercial banks were significantly smaller

in issue size than those of investment banks, with a mean of $7.43 million compared to $22.40

million for investment bank underwritten bonds.[8] The various bivariate comparisons of samples

with and without letter of credit support (see columns (3) to (6) in Table 2) also show that the

smaller offerings are more inclined to employ standby letter of credit backing.

<div align="center">(Insert Table 2)</div>

We also used Chi-square tests to examine the dichotomous variables, LIST and

PREVIOUS, in Table 2. The LIST variable suggest that investment banks are more likely to

underwrite municipal bonds of publicly traded firms compared to commercial banks, although the

differences are only weakly significant. The results for PREVIOUS show that issuers in the

municipal revenue bond market for the first time are more inclined to use the standby letter of credit

as well as to employ a commercial bank in an underwriting function. The role of the standby letters

of credit can also be differentiated among issuers. Both commercial banks (acting in an

underwriting capacity) and investment banks utilized significantly more standby letters of credit

guarantees for those issuers that were unlisted and had no previous issues (i.e. those issues about

which there was the greatest information asymmetry between issuers and underwriters).

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[8] These issues were considerably smaller than the corporate debt offerings examined by Gande, Puri, Saunders, and Walter (1997). For their study the mean issue sizes were $96 million for commercial bank underwriters and $162 million for investment bank underwriters.

Table 3 presents OLS regression results for the yield premia model employed in Equation (1). The positive coefficient for maturity reflects a rising yield spread with maturity for municipal bonds. Similar to Gande, et al. (1997) and Puri (1996), the regression results show that credit rating has a significant impact on yield premia – the higher the rating the lower the yield spread. The sign for the Treasury security rate is also negative and significant as might be expected. Interestingly, a month of high supply (SUPPLY) of municipal offerings doesn't lead to a crowding out effect in that yield spreads are marginally lower in high issue months. Finally, the LIST and PREVIOUS variables appear to have statistically insignificant effects in the regressions in Table 3.

(Insert Table 3)

With respect to the effect of commercial bank underwriting and certification, Dummy 1 is one if a commercial bank provides a standby letter of credit but the bond is underwritten by an investment bank, and zero if not. Dummy 2 is one if a commercial bank provides both a standby letter of credit and underwrites the issue. The coefficient for Dummy 1 is significantly negative and implies a 5.77 basis point reduction in spreads compared to those offerings in which there was no standby letter of credit backing of issues underwritten by investment banks. Moreover, the significantly positive coefficient for Dummy 2 implies a net increase in yield spreads of 3.83 basis points when the issuer elects to employ a commercial bank as the underwriter of bonds and commercial banks are providers of standby letter of credit backing. These results suggest that the certification effect, emanating from an investment bank as underwriter, strongly dominates the certification effect from commercial bank underwritings, even in the presence of standby letters of credit issued by commercial banks.

Table 4 splits the total sample according to bond maturity and issue size. The samples were split according to the median issue size and maturity, respectively. Previous studies have shown that commercial banking relationships are particularly important for smaller firms. In Table 4, while the negative coefficient of Dummy 1 for the smaller issues exceeds that of the large issues, both large and small firms benefit from the employment of the standby letter of credit along with the choice of an investment banker as the underwriter. The reductions in yield premiums of 7.71 and 5.32 basis points respectively for large and smaller firms, are both highly significant. By contrast, the coefficients for Dummy 2 show that neither large nor small issues benefited from having commercial banks as underwriters and letter of credit providers, with small firms being more adversely affected than large firms. Regarding issue maturity, the Dummy 1 coefficient is only significant for the long maturities while Dummy 2 is only significant for short-maturities.

(Insert Table 4)

Table 5 presents regressions where the total sample is segmented according to whether the issue was underwritten by a commercial bank or a traditional investment bank and separating those issues backed and not backed by standby letters of credit. As can be seen, the need for a commercial bank to issue a standby letter of credit to back a commercial bank underwriting is viewed adversely rather than favorably by the market (i.e., a higher spread is demanded by investors on such issues). This is consistent with the bank needing to credit-enhance weaker issues, with this enhancement appearing to signal a lower quality issue to investors. Indeed, the issues underwritten by a commercial bank without a standby letter of credit are received more favorably by the market (i.e., have lower spreads). Note that, in contrast, a commercial bank-supplied letter of credit to back an investment bank underwriting is viewed as a favorable signal of quality and spreads are lower with letter of credit backing than without by some 6bp.

(Insert Table 5)

With respect to reputation, the reputation of the investment banker appears to have an insignificant effect on spreads, given the presence of the letter of credit. The opposite is true in the commercial bank sample. The coefficient for the variable reputation for commercial banks is significantly negative, indicating that the better the reputation of the commercial bank the stronger the certification emanating from the letter of credit is likely to be. That is, the results for high reputation commercial banks (i.e., those banks with Section 20 subsidiaries) more closely conform to those of investment banks.

Thus far, we have not distinguished between the cases when the same commercial bank supplies both services as opposed to different commercial banks. However, using the subsample of 82 issues that received standby letter of credit backing and underwriting services by commercial banks, it is possible to analyze the benefits and costs of joint certification by the same bank. Table 6 presents the results of the regression analysis similar to those in Tables 3-5. The LIST variable is not included because none of the firms involved in these financings were listed. A new variable, SAMEBANK, is equal to one when both services are provided by the same bank and zero if otherwise. As noted earlier 36 of the 82 issues employed the same bank to provide both services. The significantly negative coefficient for SAMEBANK in Table 6 suggests that employing the same bank reduces the yield premium by 6.5 bp. Thus, the evidence favors using the same bank to provide "jointly" both certification services.. That is, any perceived conflicts of interest arising from the joint provision of these services are perceived to be small compared to the strength of the positive certification signal that emanates from joint (double) certification by the same bank.

(Insert Table 6)

Summary and Conclusions

This paper has employed data from the industrial revenue bond new issue market to examine the size and value (if any) to issues of using commercial banks as both underwriters and suppliers of credit guarantees. In theory, both activities have certification value. The value of these services is benchmarked against a sample of issues that have been underwritten by investment banks (with and without letter of credit backing).

The results suggest that the use of commercial banks, as both underwriters and credit guarantors, might actually be harmful to issuers except in the case where the <u>same</u> bank offers both services. This is consistent with gains from double certification dominating any potential conflicts of interest that may arise when the same bank offers both services. Overall, however, those issues underwritten by investment banks (with or without credit guarantees) are most favorably received – suggesting the continuing importance (in terms of value) of traditional investment banker certification.

Appendix

The yield premium used in this analysis must recognize the respective tax effects on both the industrial revenue bonds and matched maturity treasury bonds. That premium, PREMIUM, can be illustrated as follows:

PREMIUM   = $(Y_m / 1\text{-} Fr - Sr) - (Y_t / 1 - Sr)$

In which Y_m and Y_t are the reoffering yield on the industrial revenue bond and yield on comparable maturity U.S. Treasury bond. Fr and Sr are the federal and state income tax rates.

We employed the maximum federal income tax rate as reported for the years of the study. For state tax rates, we used the maximum income tax rate for head of family and married persons filling separate returns. The source for the state tax rates was the published list by the management consulting firm Grant Thorton.

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Table 1
Public and Private Credit Market Borrowing in the United States, 1989-1998
(in $ billions)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
U.S. Treasury securities	144.7	230.7	292	303.8	248.3	155.7	142.9	146.6	23.2	-47.4
Corporate bonds	73.8	47.1	78.8	67.6	75.2	23.3	73.3	72.5	90.7	135.3
Bank loans	41.5	5.5	-31.8	-8.9	-7.2	62.9	114.7	92.1	129.3	118.6
Municipal securities and loans	52.9	49.3	87.8	30.5	74.8	-35.9	-48.2	2.6	71.4	100.3

Source: Board of Governors of Federal Reserve System

Table 2
Sample Characteristics of Industrial Revenue and Pollution Control Bonds

Sample consists of 1003 issues over period 1987-1998 for which the interest rate on each bond was fixed and data was available. PREMIUM is the reoffering yield less the rate on a comparable maturity US government bond which has been adjusted for differences in state tax policy in terms of basis points. Both yields are adjusted for federal and state taxes. ISSUE SIZE and MATURITY are the size in millions of dollars and maturity in years, respectively; RATING is the Moody's bond rating for each issue based on the numerical scale (20-AAA, 19-Aa, etc.). SUPPLY is the dollar amount of industrial revenue bond issues sold in the same month. LIST equals one if lessee is listed on major exchange, zero if not. PREVIOUS is one if the same bond configuration was previously offered, zero if not. The mean comparison first tests for equal/unequal variances and then use the appropriate t-test.

| | | Underwriter | | Underwriter Commercial Bank | | Investment Bank | | Standby Letter of Credit | | t-Statistics | | | | | |
	Total Sample Mean	Commercial Bank (192) (1)	Investment Bank (811) (2)	Letter of Credit (82) (3)	No Letter of Credit (110) (4)	Letter of Credit (146) (5)	No Letter of Credit (665) (6)	Yes (228) (7)	No (775) (8)	1, 2	3, 4	3, 5	4, 6	5, 6	7, 8
PREMIUM (Basis points)	31.77	33.15	31.44	35.35	29.97	22.49	32.90	27.89	32.82	2.16**	2.51**	5.25***	0.69	4.35***	2.33**
ISSUE SIZE ($millions)	22.31	7.43	22.40	3.27	9.29	4.20	26.19	4.35	24.43	6.77**	3.22***	0.20	4.70***	13.57***	14.00***
MATURITY (months)	249.65	180.46	255.27	127.51	213.97	177.03	270.08	163.16	264.14	8.60***	7.26***	4.32***	4.32***	8.98***	13.40***
RATING[1]	14.60	15.05	14.22	16.57	13.90	16.65	13.66	16.67	13.75	4.95***	9.50***	1.13	1.84*	18.97***	22.55***
SUPPLY ($millions)	9982	9505	9673	8852	9560	9193	9664	9281	9746	0.53	1.23	0.32	1.01	0.28	0.76
LIST Yes	560	96	464	0	96	6	458	6	554						
No	443	96	347	82	14	140	207	222	221	3.28*	143.13***	3.46*	15.68***	205.12***	338.68***
PREVIOUS Yes	460	54	405	5	49	1	405	6	454						
No	543	138	406	77	61	145	260	222	321	30.09***	34.35***	6.00**	10.41***	173.64***	222.11***

*** Significant at 1% level; ** significant at 5% level; * signific ant at 10% level.
[1]See scale in footnote 6.

Table 3
Effect on Yield Premium of Commercial Bank as
Providers of Standby Letter of Credit and Underwriting Services

_____

Premium = β_0 + β_1 Dummy 1 + β_2 Dummy 2 + β_3 Supply + β_4 Issue Size + β_5 Maturity + β_6 Rating + β_7 List + β_8 Previous + β_9 Treasury Bond Rate

Premium in terms of basis points is the yield difference between the new issue industrial revenue bond and the equivalent maturity US Treasury security bond adjusted for state and federal taxes. Dummy 1 is a variable which is a one when there is a standby letter of credit but the issue is underwritten by an investment bank, and zero if not. Dummy 2 is a variable which is a one when the commercial bank both provides the letter of credit and serves as the lead underwriter. ISSUE SIZE and MATURITY are the size in millions of dollars and maturity in months, respectively; RATING is the Moody's bond rating for each issue based on the numerical scale (20-AAA, 19-Aa, etc.). SUPPLY is the dollar amount of industrial revenue bond issues sold in the same month. LIST equals one if lessee is listed on major exchange, zero if not. PREVIOUS is one if the same bond configuration was previously offered, zero if not. Treasury rate is the interest rate on the Treasury bond at the time of offering. All are White's adjusted.

Variable	Coefficient	T-ratio	P-value
Intercept	65.113	11.60	.000
Dummy 1	-5.769	3.35***	.005
Dummy 2	3.828	1.84**	.049
Supply$^+$	-0.737	4.75***	.001
Issue size	0.001	0.47	.701
Maturity	0.015	2.87***	.006
Rating	-1.641	8.57***	.001
List	-0.956	0.79	.412
Previous	0.986	0.89	.323
Treasury rate	-0.377	6.04***	.001

Observations 1003
Adjusted R^2 0.129
F-value 17.46 (p = .001)
$^+ = 10^3$

_____

*** Significant at 1% level; ** significant at 5% level; * significant at 10% level.

Table 4
Effects of Issue Size and Maturity on the Yield Premium

_____

Premium = β_0 + β_1 Dummy* 1 + β_2 Dummy 2 + β_3 Supply + β_4 Issue Size + β_5 Maturity + β_6 Rating + β_7 List + β_8 Previous + β_9 Treasury Bond Rate

Premium in terms of basis points is the yield difference between the new issue industrial revenue bond and the equivalent maturity US Treasury security bond adjusted for state and federal taxes. Dummy 1 is a variable which is a one when there is a standby letter of credit but the issue is underwritten by an investment bank, and zero if not. Dummy 2 is a variable which is a one when the commercial bank both provides the letter of credit and serves as the le ad underwriter. ISSUE SIZE and MATURITY are the size in millions of dollars and maturity in months, respectively; RATING is the Moody's bond rating for each issue based on the numerical scale (20-AAA, 19-Aa, etc.). SUPPLY is the dollar amount of industrial revenue bond issues sold in the same month. LIST equals one if lessee is listed on major exchange, zero if not. PREVIOUS is one if the same bond configuration was previously offered, zero if not. Treasury rate is the interest rate on the Treasury bond at the time of offering. P-values are in parentheses. All are White's adjusted.

	Large Size	Small Size	Long Maturity	Short Maturity
Intercept	70.178	66.521	82.845	62.789
	(.001)	(.001)	(.001)	(.001)
Dummy 1	-7.712**	-5.322**	-11.945***	-3.535
	(.038)	(.021)	(.005)	(.129)
Dummy 2	-5.149	6.147**	1.021	4.678**
	(.169)	(.011)	(.816)	(.035)
Supply[+]	-0.748***	-0.774***	-0.845***	-0.797***
	(.001)	(.001)	(.001)	(.001)
Issue size	0.001	0.001**	-0.001	0.001**
	(.861)	(.023)	(.387)	(.021)
Maturity	0.009	0.024***	-0.001	0.006
	(.264)	(.005)	(.955)	(.684)
Rating	-1.769***	-1.431***	-1.583***	-1.749***
	(.001)	(.001)	(.001)	(.001)
List	-0.339	-0.976	-2.117	0.550
	(.793)	(.638)	(.219)	(.756)
Previous	2.195*	.031	3.552***	-3.004*
	(.060)	(.987)	(.002)	(.062)
Treasury rate	-0.424***	-0.385***	-0.512***	-0.330***
	(.001)	(.001)	(.001)	(.001)
Adjusted R^2	0.151	0.119	0.182	0.113
F-Statistic	10.83	8.51	13.22	8.17
N	499	503	495	508

[+] x 10^3

*** Significant at 1% level; ** significant at 5% level; * significant at 10% level.

Table 5
Examination of Interaction Between Letter of
Credit Issuance and Underwriter Reputation on Yield Premium

Premium = $\beta_0 + \beta_1$ Letter 1 + β_2 Reputation 2 + β_3 Supply + β_4 Issue Size + β_5 Maturity + β_6 Rating + β_7 List + β_8 Previous + β_9 Treasury Bond Rate

PREMIUM is the reoffering yield less the rate on a comparable maturity US government bond which has been adjusted for differences in state tax policy in terms of basis points. Both yields are adjusted for federal and state taxes. LETTER is one if the issue has a letter of credit and zero if not. REPUTATION refers the reputation of the commercial banks and investment bank as specified in the text. ISSUE SIZE and MATURITY are the size in millions of dollars and maturity in years, respectively; RATING is the Moody's bond rating for each issue based on the numerical scale (20-AAA, 19-Aa, etc.). SUPPLY is the dollar amount of industrial revenue bond issues sold in the same month. LIST equals one if lessee is listed on major exchange, zero if not. PREVIOUS is one if the same bond configuration was previously offered, zero if not. P-values are in parentheses. All values are White's adjusted.

	Commercial Bank Underwriter			Investment Bank Underwriter		
Intercept	77.753	75.301	74.538	59.436	60.427	60.067
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
Letter of credit	4.971	—	2.551	-6.128***	—	-6.586***
	(.209)		(0.511)	(.003)		(.003)
Reputation	—	-8.255***	-8.031***	—	0.115	-0.125
		(.001)	(.001)		(.515)	(.509)
Supply	-0.750***	-0.457**	-0.464*	-0.716***	-0.731***	0.731***
	(.001)	(.047)	(.054)	(.001)	(.001)	(.001)
Issue size	0.006**	0.007***	0.001***	0.001	0.001	0.001
	(.041)	(.004)	(.004)	(.576)	(.996)	(.517)
Maturity	0.024*	0.022*	0.023*	0.014**	0.016***	0.015**
	(.084)	(.087)	(.082)	(.018)	(.007)	(.015)
Rating	-1.718***	-1.578***	-1.542***	-1.603***	-1.652***	-1.606***
	(.001)	(.002)	(.002)	(.001)	(.001)	(.001)
List	-1.777	-3.513	-1.592	-0.550	1.084	0.549
	(.614)	(.156)	(.673)	(.656)	(.372)	(.656)
Previous	-0.072	1.720	.0985	2.940**	2.094*	3.137***
	(.978)	(.445)	(.692)	(.012)	(.054)	(.010)
Treasury rate	-0.567***	-0.515***	-0.523***	-0.333***	-0.361***	-3.332***
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
Adjusted R^2	0.177	0.223	0.220	0.114	0.101	0.113
F-Statistic	6.12	7.84	6.98	14.00	12.43	12.48
N	192	192	192	811	811	811

*** Significant at 1% level; ** significant at 5% level; * significant at 10% level.

Table 6
Effect on Yield Premium with the Same Commercial Bank
Providing Both Standby Letter of Credit and Underwriting Services

Premium in terms of basis points is the yield difference between the new issue industrial revenue bond and the equivalent maturity US Treasury security bond adjusted for state and federal taxes. SAMEBANK is a dummy variable equal to one if the same bank provides the standby letter of credit and the issue underwriting and zero if otherwise. ISSUE SIZE and MATURITY are the size in millions of dollars and maturity in months, respectively; RATING is the Moody's bond rating for each issue based on the numerical scale (20-AAA, 19-Aa, etc.). SUPPLY is the dollar amount of industrial revenue bond issues sold in the same month. PREVIOUS is one if the same bond configuration was previously offered, zero if not. Treasury rate is the interest rate on the Treasury bond at the time of offering. All are White's adjusted.

Variable	Coefficient	T-ratio	P-value
Intercept	112.152	5.63	.001
SAMEBANK	-6.597	2.50**	.012
Supply	-0.002	4.66***	.001
Issue size[+]	0.318	1.42	.155
Maturity	0.012	0.56	.575
Rating	3.987	2.25**	.025
Previous	-0.263	0.00	.973
Treasury rate	-0.738	4.99***	.001

Observations 82
Adjusted R^2 0.219
F-value 4.29 (p = .001)

[+] = 10^3
*** Significant at 1% level; ** significant at 5% level; * significant at 10% level.