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SUMMARY

Changes in the provisions of the United States Banking Act of 1933 have allowed the entry of commercial banks into the initial public offering (IPO) underwriting market. In this paper, we examine the effect of commercial bank equity underwriting on the fees paid to auditors. We predict that IPO assurance fees will be higher for equity offerings underwritten by commercial banks than for offerings handled by traditional underwriters because (1) commercial banks are relatively inexperienced in bringing firms public, requiring additional assistance from accounting firms in the IPO process; (2) new entrants into the underwriting market may manage lower quality issues that require additional assurance services; and/or (3) since commercial banks have greater resources than do traditional investment banks, they are likely to be exposed to greater litigation risk, providing incentives for commercial bank underwriters to ensure that the IPO firm purchases greater assurance from the auditor. However, we expect fees to decrease if a previous lending relationship existed between the commercial bank and its client. Our findings, based on a sample of issues brought to market between 1991 and 1997, support these expectations.

INTRODUCTION

As the provisions of the Banking Act of 1933 (i.e., the Glass-Steagall Act) have been relaxed, commercial banks have gone from underwriting no equity securities before 1991 to participating in almost 20 percent of the initial public offerings in the second quarter of 1999 (*American Banker*, July 6, 1999, 4). This proportion is likely to increase in coming years with the recent passage of legislation that formally repeals the remaining provisions of the Glass-Steagall Act. [1] The purpose of this paper is to examine the influence of commercial banks' entry into equity underwriting on fees paid to accounting firms for IPO assurance, including auditing and other services required for the preparation and review of the registration statement.

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[1] Section 20 of the Banking Act of 1933 originally prohibited banks from being affiliated with firms that were "principally engaged" in securities underwriting. The restrictions were relaxed beginning in the 1980s. Though this transition may not be swift, the Gramm-Leach-Bliley Act—which repeals Glass-Steagall—should foster continuing IPO market share gains among large commercial banks.

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In general, we expect assurance fees to be higher for commercial-bank-underwritten IPOs than for IPOs underwritten by traditional investment banks. Because commercial banks are relatively inexperienced in bringing firms public, their counsel may require them to obtain additional assistance from accounting firms in the IPO process. It is also possible that new entrants into the underwriting market will manage lower quality issues that require additional assurance services. Furthermore, because commercial banks have deeper pockets than traditional investment banks, they are likely to be exposed to greater litigation risk. As a result, there are incentives for commercial bank underwriters to ensure that the IPO firm purchases greater assurance from the auditor.

Our proposition that assurance fees will be relatively higher for commercial-bank-underwritten IPOs requires empirical testing because there are also reasons to believe that commercial bank entry into the IPO market could exert downward pressure on fees paid to auditors. For example, commercial banks could require less assurance than investment banks because they may have greater inside information about their IPO firms as a result of previously existing banking relationships (Puri 1999). Given these contrasting predictions, we provide formal tests of the changes in fees associated with the entry of commercial banks into the equity underwriting market.

Our results indicate that assurance fees for commercial-bank-underwritten IPOs are significantly higher than for traditional investment-bank-underwritten IPOs. The findings hold in a multivariate setting where we control for auditor quality and IPO issue size (Willenborg 1999) as well as the size of the IPO firm and the risk and complexity of its operations. We also find that the higher assurance fees are mitigated by the existence of previous lending relationships between the commercial bank underwriters and IPO firms. That is, the informational advantage associated with the previous lending relationship may compensate, to some extent, for commercial banks' relative inexperience with equity underwriting.

Our paper adds to the literature examining the determinants of auditor compensation in the initial public offerings market (e.g., Beatty 1993; Hogan 1997; Willenborg 1999) by examining the impact of a new class of underwriter. Our paper also has implications for practitioners in the assurance area by providing a systematic summary of the impact on assurance fees of the entry of commercial banks into the underwriting business.

The remainder of the paper is organized as follows. In the following section we provide institutional background on the auditor's role in the IPO process and on the entry of commercial banks into the underwriting market. We then develop our hypotheses and provide descriptive statistics for our sample. In the final sections we present our results and sensitivity tests, and provide concluding remarks.

BACKGROUND

The Auditor's Role in the IPO Process in U.S. Capital Markets

The independent accountant's role in the IPO process includes a responsibility for auditing the financial statements and providing advice, as well as general services involving the resolution of accounting issues, due diligence procedures, and review of registration statements. The auditor is also responsible for issuing letters of comfort to the underwriter. With respect to the comfort letter, some of the duties include attestation regarding condensed financial information and other data. The duties also include negative assurance as to whether certain financial information outside of the financial statements complies in form in all material respects with the securities regulations (e.g., Coopers & Lybrand LLP 1997; O'Reilly et al. 1998).

The role of the auditor in providing assurance regarding new issues has been explored in the research literature (e.g., Datar et al. 1991). In these studies the emphasis has been on how assurance can be used to mitigate the costs of informational asymmetries between the IPO issuer and investors. Our study provides exploratory evidence on the impact of changes in the underwriter market on assurance fees, and we leave for future research any explicit modeling of the entry of commercial banks into the combined market for underwriting and assurance.

Changes in the Underwriter Market

The Glass-Steagall Act prohibited commercial bank underwriting of corporate debt or equity securities. The legislation was due in large part to the banking collapse of the early 1930s, which was attributed to banks' involvement in (more risky) underwriting activities as well as the conflict of interests presumed inherent in mixing commercial bank and investment bank activities (see Benston [1990] for further background information).

In the late 1980s, the Federal Reserve Board adopted a series of rulings that relaxed the barriers between commercial and investment banking, despite the continued existence of Glass-Steagall. On April 30, 1987 the Board authorized J.P. Morgan, Citicorp, and Bankers Trust to engage in limited underwriting activities, primarily of mortgage-related securities and municipal revenue bonds. Under the new rules, underwriting would have to be conducted through separately incorporated "Section 20" subsidiaries, and revenues from these activities could not exceed 5 percent of total firm revenue. Commercial bank underwriting powers were expanded in January 1989 when the Board added corporate debt and equity to the permissible activities list, and were extended further when the Board increased the revenue ceiling to 10 percent in September 1989 (and, subsequently, to 25 percent in August 1996).

In 1991, J.P. Morgan brought to market the first equity issue underwritten by a commercial bank since 1933. Since then, commercial banks have increased their relative stake in the equity underwriting market, defined in terms of total dollar volume, from 1.9 percent in 1991 to 36.1 percent in 1997 (Fields et al. 2001). With the recent repeal of Glass-Steagall, commercial banks' share of the equity IPO market is likely to increase further.[2]

HYPOTHESES

As noted earlier, our initial premise is that assurance costs are higher for IPOs underwritten by Section 20 subsidiaries of commercial banks than for IPOs underwritten by traditional investment banks. There are at least three factors that suggest that commercial banks have a greater demand than traditional investment banks for IPO assurance services. First, because commercial banks are new to equity underwriting, they may require more assistance from accounting firms in the IPO process. Second, it is possible that new entrants into the underwriting market will be successful in bidding for lower quality issues, requiring additional assurance services. Furthermore, Section 20 underwriters are subsidiaries of large, commercial banks with "deep pockets."[3] The bank's litigation exposure from underwriting can potentially be mitigated by ensuring that the firm going public obtains greater than usual assurance in the letter of comfort. To the extent that more comfort is required, accounting firms associated with these offerings can be expected to receive higher levels of IPO-related compensation.[4] These factors lead to our first hypothesis:

> **H1:** Assurance fees will be higher for IPOs underwritten by Section 20 subsidiaries of commercial banks than for IPOs underwritten by traditional investment banks.

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2 The 36.1 percent dollar volume figure (relative to the 20 percent "participation" figure quoted earlier in the paper) reflects commercial banks' involvement with large dollar volume issues. For additional information regarding the entry of commercial banks into the IPO market refer to Puri (1996, 1999), Bhargava and Fraser (1998), Fields and Fraser (2001), and Fields et al. (2001).

3 The average market value of equity across the sample period for the six commercial bank underwriters included in our sample is $15.429 billion. In contrast, the average market value of equity for the six publicly traded traditional underwriters having the greatest equity IPO exposure during the sample period is $4.554 billion. The fact that commercial bank underwriters are, on average, substantially larger than traditional investment banks increases their litigation risk.

4 However, this does not suggest that the overall cost of the IPO would necessarily be higher to the owners of the firm going public. Hogan (1997) provides evidence consistent with firm owners minimizing the total cost of the IPO including underwriting and accounting fees. Fields et al. (2001) and Gande et al. (1999) find that underwriting fees are lower when the underwriter is a commercial bank. To the extent that IPO firm owners can select a commercial bank underwriter and obtain a lower underwriting fee, they likely would be prepared to trade-off additional costs of assurance required by that underwriter.

Previous literature (e.g., Benston 1990; Puri 1996, 1999; Gande at al. 1999) suggests that commercial banks possess an informational advantage relative to traditional underwriters through their loan-monitoring activities. Under these circumstances we would expect banks to require lower levels of assurance, with consequent lower fees, for clients with which they have previously existing relationships, thus suggesting our second hypothesis:

H2: Higher assurance fees are mitigated by the existence of previous lending relationships between the commercial bank underwriters and IPO firms.

Opposite predictions could also be made based upon alternative assumptions regarding the nature of the underwriter market. For example, Gande et al. (1999) find evidence that commercial bank entry into the bond (not equity) underwriting market has resulted in decreased spreads and a decrease in market concentration, consistent with a more competitive market for underwriting. Increased competition could lead to increased pressure on fees paid to accounting firms for services provided in the IPO process and a reduction in fees paid by the commercial banks. Similarly, the informational advantage of commercial banks could be mitigated by the firewalls that may exist between parent holding companies, their Section 20 subsidiaries, and their commercial bank affiliates, leading to no systematic differences in fees paid. Empirical testing is needed to distinguish between these alternative possibilities.

SAMPLE AND DESCRIPTIVE STATISTICS

We identified 4,566 initial public offerings between 1991 and 1997 using the Security Data Company (SDC) *Worldwide New Issues* database. Consistent with previous IPO research, we eliminated all best-efforts underwritings, unit offerings, closed-end mutual fund offerings, and REIT offerings, as well as all observations with missing data.[5] Our initial sample included 2,954 observations. After removing all observations having incomplete Compustat data and six outliers, per the methods of Belsley et al. (1980), our final sample consists of 2,374 IPOs brought to market between 1991 and 1997. We selected 1991 as the initial data year because it was the first year that commercial banks were involved in equity underwriting since the 1933 passage of the Glass-Steagall Act. We ended the sample period at the end of 1997 because we require 250 days of post-IPO security returns and the 1999 CRSP tapes were not available when the data were initially gathered.

Our final sample contains 60, 332, 415, 311, 310, 572, and 374 offerings brought to market in the years 1991 through 1997, respectively. Of these, 1.7 percent, 1.2 percent, 1.9 percent, 2.6 percent, 4.8 percent, 6.3 percent, and 20.6 percent, respectively, were underwritten (either lead or co-lead) by Section 20 subsidiaries. Before implementing our Compustat screens, the corresponding Section 20 proportions were 1.5 percent, 2.2 percent, 2.3 percent, 2.5 percent, 5.4 percent, 8.1 percent, and 20.1 percent. Our final sample, therefore, is representative of the initial unscreened population of firms. Summary data for our sample of offerings are presented in Tables 1 and 2. In Table 1, we provide a breakdown of IPO market share and fees by underwriter type and auditor type. Of the six commercial bank underwriters in our sample, J.P. Morgan has garnered the largest share of the equity IPO market (12.28 percent of the total IPO market value between 1991 and 1997). Commercial banks were involved in issues representing 16.38 percent of the total IPO dollar volume market share during the seven-year sample period.

Panel B of Table 1 summarizes the auditor data for our sample of IPOs. Consistent with previous research (e.g., Menon and Williams 1991; Feltham et al. 1991; Hogan 1997) we find that the vast majority of underwriters demand the use of Big 6 auditors. In total, Big 6 firms were

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[5]   In best-efforts issues, the underwriter is under no obligation to purchase unsold securities. In recent years, these types of issues have been rare (Coopers & Lybrand LLP 1997).

TABLE 1
IPO Market Share and Fees by Underwriter Type and Auditor Type for 2,374 IPOs between 1991 and 1997[a]

Panel A: Breakdown by Underwriter

Underwriter	Number of IPOs	% of Number of IPOs	Mean IPO Value ($MM)	% Market Share	Mean Fee as % of IPO Value
J. P. Morgan	69	2.90	$302.47	12.28	6.11
Bankers Trust	34	1.43	86.32	1.73	6.73
BankAmerica	21	0.88	79.21	0.98	6.78
NationsBank	14	0.59	61.83	0.51	7.00
Chase Manhattan	8	0.34	178.10	0.84	6.41
KeyCorp	3	0.13	21.27	0.04	7.00
All Commercial Banks	149	6.28	$186.73	16.38	6.46
All Investment Banks	2225	93.72	$63.86	83.63	7.04

Panel B: Breakdown by Accounting Firm

Underwriter	Number of IPOs	% of Number of IPOs	Mean IPO Value ($MM)	% Market Share	Mean Fee as % of IPO Value
Arthur Andersen & Co	456	19.21	$70.19	18.84	0.77
Coopers & Lybrand	306	12.89	75.53	13.60	0.72
Ernst & Young LLP	529	22.28	71.69	22.32	0.63
Deloitte & Touche LLP	282	11.88	85.96	14.27	0.72
KPMG Peat Marwick LLP	345	14.53	84.60	17.18	0.58
Price Waterhouse	298	12.55	61.71	10.82	0.76
All Big 6 Auditors	2216	93.35	$74.40	97.03	0.69
All Non-Big 6 Auditors	158	6.65	$31.95	2.97	0.93

TABLE 1 (Continued) 28

Panel C: Commercial Bank Market Share and Related IPO Accounting Fees by Year

Year	n	Number SEC20	Number Non-SEC20	Median $ Fee SEC20	Median $ Fee Non-SEC20	p-value for Difference
1991	60	1	59	125,000	150,000	0.751
1992	332	4	328	182,500	140,000	0.679
1993	415	8	407	193,000	150,000	0.439
1994	311	8	303	270,000	160,000	0.098
1995	310	15	295	255,000	150,000	0.026
1996	572	36	536	250,000	175,000	0.001
1997	374	77	297	300,000	200,000	0.001

[a] All information was collected from the Securities Data Company (SDC) *Worldwide New Issues* file.

associated with 93.35 percent of the IPOs by number, representing 97.03 percent of the aggregate IPO market value during the sample period. Panel B of Table 1 reveals that Arthur Andersen, Ernst & Young, and KPMG Peat Marwick were the predominant auditors for IPOs occurring between 1991 and 1997 (58 percent of the total market), with Ernst & Young handling the most issues (22.28 percent) and securing the greatest dollar volume market share (22.32 percent).

In Panel C of Table 1 we present a breakdown of commercial bank and traditional investment bank underwriting by year. Between 1991 and 1994, commercial banks were involved in less than 2 percent of initial public equity offerings. Since that time, they have increased their market share, in terms of the number of issues underwritten, to over 20 percent in 1997. Panel C also illustrates that the accounting fees associated with commercial-bank-underwritten issues typically are higher than those associated with issues brought public by investment banks.

In Table 2 we present additional summary data for our sample of IPOs. Panel A provides univariate tests of differences between IPOs underwritten by commercial banks and traditional investment banks. Panel A of Table 2 reveals that IPOs brought to market by commercial banks are significantly larger ($187 million proceeds vs. $64 million proceeds, on average) than those underwritten by traditional investment banks. We also find that, consistent with Gande et al. (1999) and Fields et al. (2001), the underwriting fees charged by commercial banks are significantly smaller (6.46 percent of the issue price) than those charged by traditional investment banks (7.04 percent). This difference is consistent with commercial banks being willing to price their underwriting services attractively in order to obtain and increase market share.[6]

Regarding assurance fees, the univariate data in Panel A of Table 2 suggest that accounting firm fees are higher (mean of $416,320) for commercial-bank-underwritten IPOs than for IPOs underwritten by traditional investment banks (mean of $229,840). While this result supports H1, the inference is not necessarily reliable. Specifically, because commercial banks underwrite issues that are larger, on average, than those handled by traditional investment banks, the univariate fee findings could be attributable to issue size as opposed to underwriter type. We control for this possibility in our multivariate model, presented in the next section.

Panel A of Table 2 also reveals that both types of underwriters desire high quality audits for their clients, with 94.63 percent (93.26 percent) of all IPOs underwritten by commercial banks (traditional investment banks) being audited by Big 6 accounting firms. Commercial banks also were involved in substantially more offerings with global implications. Approximately 46 percent (28 percent) of the commercial bank (traditional investment bank) IPOs were either American Depositing Recepits (ADRs), had simultaneous euro offerings, or involved companies with foreign subsidiaries.[7] Finally, Panel A reveals that firms that are brought public by commercial banks have a relatively lower post-IPO standard deviation of returns and smaller relative levels of inventory and receivables, suggesting that these IPOs may be of lower risk. This finding suggests that if higher assurance fees do exist for commercial-bank-underwritten IPOs, then they likely are attributable either to higher litigation risk or to banks' lack of underwriting experience.

Panel B of Table 2 details IPO characteristics by auditor type. Accounting fees are higher for Big 6 auditors and the mean Big 6 issue size is more than double that of non-Big 6 IPOs. Furthermore, the post-issue standard deviation of returns is lower for Big 6 IPOs, as are both the relative level of inventory and receivables and financial leverage. These factors suggest that higher quality auditors are involved with lower risk equity offerings—a result that may be the result of client screening by Big 6 firms. Finally, higher quality auditors appear to be desired in issues that have international accounting implications. Almost 30 percent of the Big 6 offerings involved ADRs, simultaneous euro issues, or firms having foreign subsidiaries, compared to only 19 percent of non-Big 6 issues.

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[6] Chen and Ritter (2000) show that over 90 percent of medium-sized ($20–$80 million) IPOs have gross margins of exactly 7 percent; however, they find significant variation in gross margin for issues in excess of $80 million.

[7] For the purposes of our analysis, a firm is defined as having foreign subsidiaries if it reported foreign income taxes payable or foreign deferred income taxes in the year prior to the IPO.

TABLE 2
Summary Data for 2,374 IPOs Underwritten between 1991 and 1997

Panel A: IPO Characteristics by Underwriter Type

Characteristic	Commercial Bank Underwriter	Investment Bank Underwriter	p-value for Difference
Total Number of IPOs	149	2225	
IPO Proceeds ($ millions)	186.73	63.86	0.01
Total Assets ($ millions)	3112.11	380.29	0.01
Inventory + Receivables as % of Assets	33.43	39.29	0.01
Total Liabilities as % of Assets	77.97	79.63	0.64
Post-IPO Standard Deviation of Returns[a]	3.92	4.16	0.06
Gross Underwriting Fee as % of Price	6.46	7.04	0.01
Accounting Fee ($ thousands)	416.32	229.84	0.01
Number of Segments	1.12	1.08	0.41
% Audited by Big 6 Firm	94.63	93.26	0.61
% ADR, Euro, or Foreign Subsidiaries	45.64	27.91	0.01
% Prestigious Underwriters[b]	74.50	51.82	0.01

Panel B: IPO Characteristics by Auditor Type

Characteristic	Big 6 Auditor	Non-Big 6 Auditor	p-value for Difference
Total Number of IPOs	2216	158	
IPO Proceeds ($ millions)	74.40	31.95	0.01
Total Assets ($ millions)	584.38	94.14	0.01
Inventory + Receivables as % of Assets	38.59	43.64	0.02
Total Liabilities as % of Assets	78.84	89.21	0.10
Post-IPO Standard Deviation of Returns	4.10	4.74	0.01
Gross Underwriting Fee as % of Price	6.93	8.01	0.01
Accounting Fee ($ thousands)	248.76	140.28	0.01
Number of Segments	1.09	1.08	0.88
% Commercial Bank Underwritten	6.36	5.06	0.61
% ADR, Euro, or Foreign Subsidiaries	29.74	18.99	0.01
% Prestigious Underwriters	55.55	20.89	0.01

The last three variables in each panel are proportions. The remaining measures are mean values.

[a]   Standard deviation of returns is calculated from day +5 to day +255 relative to the IPO date.
[b]   Underwriters are defined as "prestigious" if they are listed on the *Investment Dealer's Digest* Top 10 List in the year of the IPO.

EMPIRICAL METHOD AND RESULTS

Empirical Method

Ceteris paribus H1 posits that accounting firms are likely to receive higher assurance fees for IPOs underwritten by commercial banks than for IPOs underwritten by traditional investment banks. Previous research suggests several determinants of the assurance fees that are associated with initial public offerings. We include many of these measures and expand the model to allow investigation of the impact of commercial bank underwriting. The form of our model is as follows:

$$ACCTFEE_j = \gamma 1 + \gamma 2 \ ASSETS_j + \gamma 3 \ PROCEEDS_j + \gamma 4 \ INVREC_j + \gamma 5 \ DEBT_j + \gamma 6 \ STDRET_j$$
$$+ \gamma 7 \ FOREIGN_j + \gamma 8 \ SEGMENTS_j + \gamma 9 \ BIG6_j + \gamma 10 \ PRESTIGE_j + \gamma 11 \ SEC20_j$$
$$+ \gamma 12 \ LENDING_j + \sum_{j=13,17} \gamma_j \ INDUSTRY_j + \sum_{j=18,23} \gamma_j \ YEAR_j + \varepsilon_j. \qquad (1)$$

In equation (1), ACCTFEE is the log of the fees paid to the accounting firm associated with the IPO. Like Willenborg (1999) and Beatty (1993), we include the log of pre-IPO total assets (ASSETS) as a general proxy for the effort required in the audit engagement. We also include the log of the IPO issue size (PROCEEDS) to control for the implicit insurance coverage provided by the auditor (Willenborg 1999). Both ASSETS and PROCEEDS also serve to control for the impact of issue size on fees. The next three variables serve as risk proxies. INVREC (DEBT) represents the firm's inventories and receivables (total liabilities) scaled by total assets in the year prior to the IPO. If auditors charge a premium for firms with greater balance-sheet risk, then the coefficients for INVREC and DEBT should be positive. We also include STDRET, calculated as the one-year post-IPO standard deviation of common stock returns, as a proxy for the market's perception of IPO firm risk. Although we expect the coefficient for STDRET to be positive as well, we acknowledge that the (necessarily) *ex post* nature of this variable renders it more noisy than the other two measures.

We include FOREIGN to control for the complexities associated with IPOs involving ADRs, simultaneous euro offerings, and/or firms with foreign subsidiaries. FOREIGN is equal to 1 for IPOs having any of these three characteristics, 0 otherwise. Similar to Willenborg (1999) and Beatty (1993) we expect the coefficient on FOREIGN to be positive. We also include the number of industry SEGMENTS, as reported on Compustat, as a further control for the complexity of the issue.

BIG6 is our proxy for auditor quality. It is equal to 1 (0) if the accounting firm involved in the IPO is a Big 6 (non-Big 6) firm. To control for underwriter quality we include PRESTIGE, which is equal to 1 (0) if the underwriter was (was not) named in the *Investment Dealer's Digest* Top 10 Underwriters list in the year of the IPO.[8] We attempt to mitigate any significant industry effects by including indicator variables for the five two-digit SIC code classifications—28, 35, 36, 38, and 73—responsible for more than 5 percent (each) of the total observations.[9] To the extent that accounting firms have gained correspondingly more experience working with firms in these dominant industries, we expect the industry coefficients to be negative.[10] Finally, we include individual year dummy variables (YEAR) to control for time-specific factors occurring across the sample period. We omitted 1991 so that each YEAR coefficient from 1992 through 1997 represents the increase in audit fees relative to the 1991 level.

The primary variables of interest for our study are SEC20 and LENDING. SEC20 is equal to 1 if the underwriter is a commercial bank Section 20 subsidiary, 0 otherwise. Similarly, LENDING is equal to 1 if the commercial bank underwriter had a lending relationship with the IPO firm prior to the public offering, and is equal to 0 if no such relationship existed. To determine whether a lending relationship existed between the commercial bank subsidiary and the IPO firm, we first surveyed the IPO firms directly. If no survey response was received, we examined the first 10-K filing following

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[8] Table 2 shows that more commercial-bank-underwritten issues involve "prestigious" underwriters than do traditionally underwritten issues, presumably because of the relatively large dollar volume market share held by commercial banks.

[9] We also investigated whether certain industries were overrepresented among commercial bank underwritings. Two of the five most prevalent two-digit SIC codes (36 and 73) presented in equation (1) were common across commercial bank underwriters. Our results were unchanged when we modeled these effects exclusive of the other three industries. Finally, we included all one-digit SIC codes as a broad control for industry-related effects. Again, our results were unchanged.

[10] It is reasonable to expect a positive coefficient for some of these industries (SIC 28, 35, and 73, in particular) given the litigation risk research of Francis et al. (1994) and others. Our expectation of negative coefficient estimates is based on Willenborg's (1999) contention that PROCEEDS adequately captures the auditor's insurance coverage (i.e., bigger issues have more litigation risk and should command a fee premium). If this is the case, the marginal assurance fees for the "most common" types of IPOs should be lower.

the IPO to determine whether the commercial bank underwriter was listed as a lender to the IPO firm. In total, commercial banks were determined to have previously existing lending relationships with the IPO firms in 27 of the 149 bank-underwritten issues. These 27 issues are appreciably larger, with median proceeds of $114 million vs. $46.55 million for the 122 issues with no previous lending relationship. We control for these size-related effects in our multivariate analysis and sensitivity tests.

We expect commercial-bank-underwritten issues to require more assurance; however, H2 predicts that less assurance would be required if a previous relationship existed between the commercial bank underwriter and the IPO firm. Therefore, we expect a positive coefficient for SEC20 and a negative coefficient for LENDING.

Results

Table 3 presents the results associated with estimation of our auditor compensation model (equation (1)). [11] Because we have directional predictions for the effects of interest, we present one-tailed p-values. Similar to Willenborg (1999), we find both IPO firm size and issue proceeds to be important determinants of auditor compensation. We also find that auditors charge a premium for firms having higher levels of inventory and receivables and/or more debt. These findings are consistent with accounting firms demanding greater compensation for IPO audits requiring more effort (ASSETS), having greater litigation potential (PROCEEDS), and involving firms with more balance sheet risk (INVREC and DEBT). The positive significant estimate for FOREIGN also indicates that audit fees are higher for issues that are more complex, in terms of international exposure. Our measure of auditor quality, BIG6, retains its significance in the presence of the control measures, indicating that higher quality auditors command a fee premium. The coefficients for the YEAR dummy variables, in general, increase and become more significant from 1992 through 1997, reflecting incrementally higher fees over time (relative to 1991 levels).

The findings provide support for both hypotheses. The significant positive estimate for SEC20 reveals that accounting firms require greater compensation for IPOs underwritten by commercial banks (H1). The significant negative estimate for LENDING, however, illustrates a decrease in fees among commercial-bank-underwritten issues where prior business associations do exist (H2).[12]

SENSITIVITY TESTS

To ensure that our results are not sensitive to particular model specifications, we conducted a variety of sensitivity tests. Of particular concern is the possibility that the results may be due to a residual size effect.[13] As is shown in Table 1, commercial bank underwriters handle larger issues, on average, than do traditional underwriters. Although we control for issue size in the multivariate model, as a sensitivity test we removed (1) all traditionally underwritten IPOs that were not within 10 percent of the issue size of at least one commercial-bank-underwritten issue in the IPO year and (2) all commercial-bank-underwritten IPOs that were not within 10 percent of at least one traditionally underwritten issue in the IPO year.[14] In essence, the purpose of this test is to ensure that the relative

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[11] Despite correlation between some of the size-related control variables, the variance inflation factors (VIF) associated with equation (1) are well below levels that would indicate problematic multicollinearity.

[12] When we use standard errors calculated using the method of White (1980), our results are qualitatively unchanged.

[13] In addition to the size-effect concerns, we also estimated a two-step correction model (Heckman 1979; Greene 1981) to control for the potential selection bias arising from observing a disproportionate choice of high-quality underwriters by IPO firms. In the first stage we used a Probit model to estimate the determinants of the choice of high- or low-quality underwriter. We then included the inverse of the resulting Mills Ratio in the second-stage equation, augmenting equation (1). The inferences we draw from the second-stage equation are no different from those associated with the initial (uncorrected) model.

[14] This approach is preferable to a standard one-to-one, size-based matching procedure because it explicitly rejects extreme observations while retaining all observations deemed as "comparable," thereby allowing for more power in the model and a greater degree of cross-sectional variation in the other independent variables.

TABLE 3
Regression Results Examining the Influence of Commercial Bank Underwriting
on IPO Assurance Fees

$$\text{ACCTFEE}_j = \gamma 1 + \gamma 2 \text{ ASSETS}_j + \gamma 3 \text{ PROCEEDS}_j + \gamma 4 \text{ INVREC}_j + \gamma 5 \text{ DEBT}_j + \gamma 6 \text{ STDRET}_j$$
$$+ \gamma 7 \text{ FOREIGN}_j + \gamma 8 \text{ SEGMENTS}_j + \gamma 9 \text{ BIG6}_j + \gamma 10 \text{ PRESTIGE}_j + \gamma 11 \text{ SEC20}_j$$
$$+ \gamma 12 \text{ LENDING}_j + \sum_{j=13,17} \gamma_j \text{ INDUSTRY}_j + \sum_{j=18,23} \gamma_j \text{ YEAR}_j + \varepsilon_j$$

Variable	Expected Sign	Coefficient	p-value
INTERCEPT	+	10.364	0.001
ASSETS	+	0.031	0.005
PROCEEDS	+	0.266	0.001
INVREC	+	0.107	0.023
DEBT	+	0.048	0.003
STDRET	+	0.210	0.424
FOREIGN	+	0.141	0.001
SEGMENTS	+	0.016	0.290
BIG6	+	0.326	0.001
PRESTIGE	−	0.047	0.999
SEC20	+	0.140	0.013
LENDING	−	−0.217	0.058
SIC28	−	−0.233	0.001
SIC35	−	−0.012	0.421
SIC36	−	−0.108	0.015
SIC38	−	−0.139	0.008
SIC73	−	−0.004	0.450
YEAR92	+	0.044	0.315
YEAR93	+	0.083	0.177
YEAR94	+	0.203	0.013
YEAR95	+	0.157	0.042
YEAR96	+	0.246	0.002
YEAR97	+	0.398	0.001
Adjusted R^2		0.292	

Definition of Variables:

ACCTFEE = log of IPO assurance fees from the Security Data Company (SDC) *Worldwide New Issues* database data item for accounting fees and expenses (data item 147L);

ASSETS = log of total assets at fiscal year-end prior to IPO;

PROCEEDS = log of IPO issue proceeds;

INVREC = (inventory + receivables)/assets;

DEBT = total liabilities/assets;

STDRET = 250-day post-IPO standard deviation of common stock returns;

FOREIGN = 1 if IPO firm has foreign subsidiaries or if the IPO is an ADR or eurodollar offer, 0 otherwise;

SEGMENTS = number of industry segments reported on Compustat for the IPO firm;

BIG6 = 1 if auditor is a Big 6 accounting firm, 0 otherwise;

PRESTIGE = 1 if underwriter was on the *Investment Dealer's Digest* Top 10 List in the year of the IPO, 0 otherwise;

SEC20 = 1 if underwriter is a commercial bank Section 20 subsidiary, 0 otherwise;

LENDING = 1 if Section 20 subsidiary had a previous lending relationship with the IPO firm, 0 otherwise;

SIC28–73 = 1 if IPO firm has a two-digit SIC code of 28, 35, 36, 38, or 73, respectively, 0 otherwise; and

YEAR92–97 = 1 if IPO occurs during 1992, 1993, 1994, 1995, 1996, or 1997, respectively, 0 otherwise.

over- (under-) representation of commercial-bank-underwritten IPOs among large (small) issues is not responsible for the commercial bank findings.

The reduced model contains 1,022 observations—115 commercial bank issues matched with 907 comparably sized traditional underwriter issues. In this model, SEC20 remains positive ($p < 0.055$) and LENDING remains negative ($p < 0.080$). Although the significance levels decrease from the full model, we do not believe that the initial results are unduly influenced by commercial banks underwriting a disproportionate number of large issues, particularly given that the significance levels are higher in the full model after controlling for ASSETS, PROCEEDS, FOREIGN, SEGMENTS, and BIG6 (all capturing aspects of "size").

To investigate further the nature of the commercial bank underwriter effects in the full sample of 2,374 observations, we divided the 149 commercial bank issues into "small" and "large" partitions based on the underwriters' average market value of equity across the sample period. Our purpose in this analysis was to determine whether any particular class of commercial bank was responsible for the findings presented in Table 3. The "small" partition includes Bankers Trust, KeyCorp, and J.P. Morgan, which had average equity values of $6.4 billion, $7.9 billion, and $14.6 billion, respectively, between 1991 and 1997. During the same period, NationsBank, Chase Manhattan, and BankAmerica ("large" bank partition) had average equity values of $19.8 billion, $20.4 billion, and $23.5 billion, respectively. When we expand equation (1) to allow for two distinct size-based SEC20 variables, both the "small" coefficient and the "large" coefficient remain generally significant ($p < 0.014$ and $p < 0.067$, respectively). Comparable results obtain when we form the "large" and "small" partitions based on average issue size or percent of IPO market share. Due to sample size limitations we cannot reasonably expand the model further to allow for separate LENDING effects.

As a final sensitivity test we investigated whether the findings presented in Table 3 are attributable to any particular bank or subset of banks. Specifically, we allowed each Section 20 commercial bank underwriter to enter into the model on its own, thereby replacing the single SEC20 variable with six individual SEC20 variables. Of the four commercial bank underwriters having at least ten observations in the sample, three (Bankers Trust, J.P. Morgan, and NationsBank) have significant, positive coefficient estimates ($p < 0.009$, $p < 0.091$, and $p < 0.024$, respectively). For econometric reasons we are hesitant to draw any significant inferences based on these tests. At a minimum, however, the results suggest that the sample-wide Section 20 finding is not driven by any single commercial bank underwriter.

CONCLUSION

In this paper, we examine the effects on auditor compensation of commercial banks' entry into equity IPO underwriting. We hypothesize that assurance costs may be higher in offerings that are handled by commercial banks than by underwriters that have traditionally managed initial public offerings, particularly when no previous business association exists between the commercial bank and the IPO firm. We examine this hypothesis using a sample of over 2,300 issues brought to market between 1991 and 1997.

We find that assurance fees are significantly higher in offerings that are underwritten by commercial banks. These higher fees are consistent with greater audit effort (i.e., more "comfort") attributable to commercial banks' relative inexperience in equity underwriting. We also document a significant downward shift in the assurance fee structure that is associated with the existence of a previous lending relationship between the commercial bank and the IPO firm.

The results of this study must be interpreted with respect to several limitations. Ideally we would like to examine the type and cost of specific assurance services provided, but our study is constrained by the data available. We have not attempted to model the economics of the market underlying the observed fees, although our study provides some descriptive evidence for developing such a model. We have also not attempted to thoroughly model endogeneity between the choice of underwriter and choice of auditor suggested by previous research (e.g., Hogan 1997). Given the relatively few non-Big 6

and commercial bank observations and the complex system of simultaneous equations that would be required to fully investigate this issue, obtaining an identified set of equations is problematic.

One area of future research that appears to be quite promising involves the direction of audit fees in coming years as more firms are brought public by commercial bank Section 20 subsidiaries. Specifically, will accounting firms continue to be able to maintain a premium for these types of issues or will the premium disappear as the original commercial banks gain more experience and as traditional investment banks are merged into larger commercial banks? Alternatively, through archival data from audit work papers, future researchers may wish to investigate whether the higher assurance fees associated with these types of IPOs are offset by incremental costs associated with providing the level of assurance required.

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