

**Breaking Down the Barriers:
Bank Competition and Underwriting Incentives**

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March 2007

JEL classification: G21; G24; G28; K22; L14

Keywords: Bank entry, Banking deregulation, Underwriting, Certification, Investment banking

We thank Matthias Kahl and Paolo Fulghieri and seminar participants at the University of North Carolina and Wharton's Accounting seminar for helpful comments. Shivdasani acknowledges support from UNC's Wachovia Center for Corporate Finance, and Song acknowledges support from the Wharton Financial Institutions Center.

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Abstract

We show how increased competition from the entry of commercial banks into the bond underwriting industry affected the incentives and screening efficacy of underwriters. During the 1996–2000 period, commercial banks stole significant market share from traditional investment banks. We show that in response to this increased competition, underwriting fees dropped and syndicate structure evolved to include multiple lead underwriters. Both of these effects lowered the incentives of underwriters to produce new information regarding issuer quality. We find that higher levels of commercial bank entry increased the frequency with which issuing firms were subsequently sued by shareholders in class-action lawsuits alleging financial misconduct. Our results highlight an adverse effect of market competition on the information production incentives of financial intermediaries.

1. Introduction

Financial institutions play an important role in modern capital markets as financial intermediaries involved in the collection, evaluation, and dissemination of information. Commercial banks specialize in this role of certification due to their lending relationships which provide them with information not publicly available to capital markets. Securities underwriters perform a similar role in financial markets, but their information production arises through a different channel. As certifiers of issuer quality, securities underwriters have incentives to maintain their reputation for screening out low-quality issues, thereby certifying to investors the quality of the new issues that they bring to the market. For decades, these two channels of information production were separated by the Glass-Steagall Act, which prohibited commercial banks from securities underwriting in the US.

The removal of the underwriting barriers erected by the Glass-Steagall Act has relaxed the separation between commercial banking and securities underwriting. This has led to an environment of intense competition in securities underwriting, as commercial banks have sought to enter a market traditionally dominated by investment banks. Today, commercial banks account for a substantial fraction of investment banking volume, particularly in bond underwriting. For example, in the year 2000, the ten largest bond underwriters accounted for 90% of the market share, and five of these ten underwriters were commercial banks.

The relaxation of the Glass-Steagall Act has prompted several studies and debate on whether the entry of commercial banks into the underwriting business has yielded better outcomes for issuing firms. The prevailing view is that the entry of commercial banks has had a beneficial effect for client firms, i.e., the corporate issuers. For example, commercial bank entry has been shown to ease capital market access for smaller and riskier issuers and to lower the yields for these issuers. However, the literature is silent on how this regulatory change has impacted investors. The recent wave of financial

fraud in the US has led to investor losses in the hundreds of billions of dollars from defaulted bonds issued by firms such as Enron, WorldCom, and many others accused of financial misconduct. Thus, the effects of this change in regulatory and market structure for investors are a relevant and important issue.

We examine how commercial bank entry following the Glass-Steagall deregulation affected the competitive structure of the industry and the incentives of underwriters to certify the quality of issuers. We argue that increased competition resulting from the entry of commercial banks into the securities underwriting business lowered the incentives of all underwriters to screen issuer quality. We propose that two forces were at work to reduce screening incentives. Using data on bond issues, we show that bank entry made securities underwriting much more competitive and significantly reduced underwriting fees. The reduction in fees over our sample period is much sharper than those shown in earlier studies. We present data consistent with the view that this compression in fees lowered the incentives for underwriters to incur costs of screening issuer quality, leading to lower-quality issuers coming to market.

The entry of commercial banks also had a significant impact on industry structure. Prior to commercial bank entry, underwriting syndicates consisted of a lead underwriter and a group of co-managers. With the dissolution of the Glass-Steagall barriers, commercial banks competed intensely for the lead underwriting spot, often relying on their lending relationships to win these mandates (Yasuda, 2005; Ljungqvist, Marston, and Wilhelm, 2006). We document that with increased competition from commercial bank underwriters, issuers began to include multiple institutions as lead underwriters, leading to the advent of the co-led syndicate structure.

We argue that reputation-based incentives for underwriters to screen issuer quality became weaker as a result of the co-led syndicate structure. Reputational effects have been recognized as being an important source of incentives for underwriters to screen issuer quality (Chemmanur and

Fulghieri, 1994), but we argue that in co-led syndicates, these incentives are lowered due to a free-rider problem between underwriters. Thus, the emergence of co-led syndicates also led to lower-quality issuers accessing the market.

Our data come from 1996–2000, a period that encompasses a significant relaxation in the rules permitting bank entry into bond underwriting. Since issuer quality at the time of market entry is information privy only to the underwriter, we rely on an ex-post proxy of issuer quality in our tests. Specifically, we measure the incidence of securities fraud class-action lawsuit filings within three years of a bond issue. These lawsuits have been frequently used in the literature as an instrument for financial misconduct and are associated with substantial valuation penalties for issuing firms. Using the incidence of these lawsuits as a measure of issuer quality, we test whether underwriters were successful in screening low-quality issues from high-quality issues following bank entry into bond underwriting. Since the lawsuits allege deliberate financial misconduct by issuing firms, these events are particularly suitable for testing theories of screening and certification. Other measures of ex-post performance, such as credit-rating downgrades, defaults, or exchange delistings, will inevitably include many honest or inadvertent failures due to factors beyond management control.¹ For example, bond issues increase the leverage of the issuer and, therefore, the likelihood of default. Thus, it is helpful to have an instrument for issuer quality that is not mechanically linked to the bond issuance decision.

Our analysis extends the debate on the consequences of the entry of commercial banks into the underwriting industry. Earlier papers by Kroszner and Rajan (1994) and Puri (1996) conclude that issues underwritten by commercial banks were of higher quality and commanded higher prices in the pre-Glass-Steagall era. Using data from 1993–1995, Gande, Puri, Saunders, and Walter (1997) find that commercial banks help obtain higher prices for issuing firms and that bank underwriting has

¹ The use of lawsuits as a proxy for client quality raises the concern that the results may be driven by size or deep-pocket effects. Our analysis contains extensive controls for such effects.

helped smaller and riskier firms bring bond issues to market. Drucker and Puri (2005) show that issuers accessing equity markets benefit through lower fees and borrowing costs when underwriting and lending take place concurrently. More recently, however, Sufi (2004) argues that yield spreads in bond issues reflect unobserved issuer characteristics, thereby cautioning against cross-sectional yield comparisons. Using a fixed-effects framework, he argues that lending relations give banks substantial power over client firms; he finds no evidence that commercial banks (with or without lending relationships) obtain higher prices for issuing firms. Since our tests use an ex-post measure of issuer quality instead of an ex-ante measure such as bond yields, our results are free of the concerns raised by Sufi (2004).

In Figures 1 and 2 we illustrate the changes in market structure analyzed in this paper. Before 1995, investment banks dominated the bond underwriting business, with the market share of commercial banks hovering at or below 10%. After 1996, commercial banks succeeded in capturing a significant portion of the market from investment banks, expanding their market share to almost 56% by the end of the 1990s.² Contemporaneous with this expansion, we observe the emergence of co-led syndicate structures. While multiple lead underwriters were unheard of before 1995 in the US, co-led syndicates involving multiple underwriters were present in almost a third of all bond issuance by 2000.

The expansion of commercial banks into bond underwriting in the post-1995 period was accompanied by a steep decline in bond underwriting fees. While fees also declined slightly in the first half of the 1990s, the drop was much sharper after 1996. Fees dropped for both investment-grade and high-yield bond issuances, but consistent with the more active entry of banks for smaller and riskier issues, the decline was more pronounced for high-yield issues.

² As described later, the expansion of commercial bank market share coincides with the relaxation of the 10% revenue limitation for commercial banks.

Our empirical design exploits the cross-sectional variation in the extent of bank entry across industries. We test whether industries with greater penetration by banks were more likely to witness the use of co-led syndicates and whether co-led syndicates and high bank penetration are associated with a greater frequency of financial fraud related class-action lawsuits. In conducting these tests, we recognize the potential endogeneity of both bank entry and the syndication decision and provide new evidence on the determinants of underwriting syndicate structures in the late 1990s.

Overall, our results support the view that relaxation of the Glass-Steagall Act provisions increased the competitiveness of the bond underwriting industry and led to a reduction in the incentives for underwriters to screen low-quality issuers from the market. In this regard, our results suggest a new explanation for the wave of financial fraud that has been observed in recent years. However, we caution that our interpretation does not rule out or diminish the importance of other factors that have been identified as contributing to recent corporate financial fraud. Also, our evidence does not permit a welfare analysis of the merits of the Glass-Steagall deregulation. Such an undertaking would entail analysis of the trade-off between the potential benefits, such as improved market access by riskier and lower-quality issuers, and the potential ex-post costs to investors, which is beyond the scope of this paper.

More broadly, our results contribute to the wider literature on the effect of market competition on the value of relationships. Petersen and Rajan (1995) argue that competition in credit markets lowers the value of relationships to the firm because of the bank's inability to share in the future surplus of the firm. Rajan (1992) notes that the bank's information monopoly may not be sufficient to bind the firm when there is competition from arm's-length markets. Pichler and Wilhelm (2001) develop a theoretical model in which barriers to entry and an economic surplus are critical for providing incentives to underwriters to preserve their reputation. To our knowledge, ours is the first study to empirically illustrate how market competition affects the value of relationships in the securities underwriting markets.

The paper is organized as follows. Section 2 discusses the regulatory issues and develops the hypotheses examined in the paper. Section 3 explains the sample selection, data, and descriptive statistics. In Section 4 we analyze the joint probabilities of subsequent litigation against bond issuers, syndicate structure, and the involvement of commercial banks as underwriters. Section 5 concludes.

2. Regulatory Framework and Hypotheses

2.1. Commercial Bank Entry and the Gramm-Leach-Bliley Act

The Gramm-Leach-Bliley Act (GLBA), also known as the Financial Services Modernization Act, was intended to facilitate the integration of the financial services industry in response to technological developments, global competition, and the changing demand for financial services.³ The GLBA repealed certain provisions of the Glass-Steagall Act that prohibited commercial banks from underwriting securities issues. Initially restricted to 5% of the revenues of their Section 20 subsidiaries, commercial banks were allowed to engage in non-corporate debt securities underwriting in 1987. In 1989, underwriting powers were expanded to include both debt and equity, and the revenue limitation was raised to 10%. This limitation was raised further to 25% in 1996. Since 1996, commercial banks have become much more prominent underwriters of corporate issues, particularly for debt securities.

2.2. The Increased Competition Hypothesis

Anand and Galetovic (2000) develop a model in which financial intermediaries have weak property rights over information produced regarding the quality of client firms. In their framework,

³ See Gande, Puri, and Saunders (1999) for a detailed discussion of the deregulation of the Glass-Steagall Act. For empirical studies prior to Glass-Steagall, see Ang and Richardson (1994), Kroszner and Rajan (1994), and Kroszner and Rajan (1997). For empirical studies in the 1990s, see Gande, Puri, Saunders, and Walter (1997), Hebb and Fraser (2002), Yasuda (2005), and Ljungqvist, Marston, and Wilhelm (2006).

information becomes a public good after it is produced, resulting in an information free-riding problem among underwriters. Because no underwriter has an incentive to incur information collection costs, the free-rider problem leads to a market failure. To resolve this market failure, Anand and Galetovic show that in equilibrium, an oligopolistic industry structure is necessary for underwriters to engage in information production. In such a market structure, other underwriters refrain from competing with the information-producing underwriter. This gives the underwriter temporary monopoly power to charge local monopoly rents from its client, providing it with the incentive to produce information about client quality. Anand and Galetovic show that in equilibrium, a perfectly competitive market does not provide enough rents to sustain this incentive.

Anand and Galetovic's framework implies that increased competition resulting from entry of commercial banks can affect the incentives of all underwriters to produce information. To the extent that bank entry perturbs an existing oligopolistic structure and increases competition among underwriters, we expect that prices of underwriting services will decline. Thus, their model predicts that underwriter incentives to produce information will be reduced, thereby leading to less certification and an increased number of lower-quality issuers coming to market.

The role of market competition in securities underwriting is also considered by Pichler and Wilhelm (2001). They note that individual syndicate members face incentives to free-ride on information production costs. In such a model, barriers to entry allow an issuer to share the economic surplus with the syndicate, providing the lead underwriter with incentives to preserve its reputation and monitor the effort of other syndicate members. Pichler and Wilhelm's analysis implies that lower economic rents arising from increased competition lower the value of reputation and the incentives to incur high information production costs. We term this *the increased-competition hypothesis*. We test this hypothesis by investigating whether increased competition resulting from bank entry in debt underwriting led to a higher incidence of security fraud lawsuits following bond issues.

2.3. *Evolution of Co-Led Syndicates and the Reputation-Breakdown Hypothesis*

Financial intermediaries also face incentives to certify issuer quality due to reputational effects. Chemmanur and Fulghieri (1994) show that investment banks face certification costs in the short run but gain reputation from their information collection, which allows them to bring high-quality issues to market. Reputation pays off in the long run through greater demand for issues underwritten by the underwriter. Therefore, underwriters have an incentive to acquire a reputation for certifying issuer quality. Empirical support for reputation effects is provided by Fang (2005), who shows that reputable underwriters obtain better yields for borrowing clients. Ljungquist, Marston, and Wilhelm (2006) show that reputational concerns overcome underwriter incentives to issue biased equity reports in order to win bond issuance mandates.

In its simplest form, the reputation-breakdown hypothesis suggests that commercial banks ought to face similar incentives to screen issuer quality in order to build reputation and gain future market share. However, to the extent that increased competition among underwriters lowers future revenues, and thereby the benefits of reputation acquisition, it is possible that incentives to screen are reduced for all types of underwriters in the market. Along these lines, Fang (2005) conjectures that the ability of investment banks to earn economic rents from their reputation is necessary to provide them the incentives to maintain reputation.

The evolution of syndicate structure in response to bank entry suggests that reputational effects would be weakened after bank entry. As we describe below, commercial bank entry in underwriting corresponds with an increase in the use of co-led syndicates. In a co-led syndicate, multiple (typically two) underwriters jointly lead an offering. Therefore, in co-led offerings, the reputation of the managing group is relevant to investors, and individual lead managers face incentives to free-ride on the reputation of other co-lead managers in the syndicate.

Reputational considerations for groups have been studied by Tirole (1996), who notes that in group settings, individual reputation is not perfectly observable. Thus, there is the potential for a

negative spillover of others' reputation in the same group, which can lower the incentive of an individual to maintain reputation. Although not formally modeled by Tirole (1996) in the context of securities underwriting, his arguments suggest that when certification is very important for an issuer, the issuer would opt for a sole underwriter in order to avoid free-riding incentives. In contrast, for higher-quality issuers where certification is less important, co-led syndicates would be more likely. Therefore, issuers are likely to self-select into sole- or co-led syndicates based upon the need for certifying issuer quality. Empirically, accounting for this self-selection is likely to be important for evaluating reputational effects and certification incentives of underwriters in co-led syndicates.

These arguments on incentives in co-led syndicates are different from those considered in earlier studies. Pichler and Wilhelm (2001) suggest that syndication among investment banks enhances information production when a lead underwriter is delegated a monitoring role. Song (2004) shows that underwriters with complementary abilities can cooperate in a syndicate, resulting in a more comprehensive set of services to issuers. However, both of these papers consider a syndicate structure in which a lead underwriter invites junior co-managers into the syndicate. Our analysis, in contrast, focuses on whether the lead underwriter position is held by a single firm (sole-led) or by multiple firms (co-led). To the best of our knowledge, we are the first to study the determinants and effects of co-led syndicates.

2.4. Measuring Underwriting Screening and Issuer Quality

Informational advantages give financial intermediaries an important role in certifying the quality of their clients, as noted by Allen (1990) and others. However, client quality is difficult to observe directly, even ex-post. The use of ex-post performance data is subject to the drawback that performance may fall below expectations for a number of reasons that have nothing to do with ex-ante client quality. However, financial misconduct—in the form of misstatement of financial results, disguising of the true financial health of a company, or fraudulent dealings—is a key aspect of client

quality and is clearly relevant to prospective investors. Therefore, we use the efficacy of screening for financial misconduct as our measure of client-quality certification. This approach is consistent with the industry-wide practice of due diligence, which seeks to detect and screen for financial misrepresentations or irregularities, conducted by underwriters in advance of a public offering.

Empirically, we use the filing of a class-action lawsuit as a proxy for financial misconduct. Under SEC Rule 10b-5, shareholders can sue a company for material misrepresentation of financial prospects, and class-action lawsuits have been widely used as an instrument for measuring corporate fraud. Karpoff, Lee, and Martin (2006) show that such lawsuits have severe price consequences for issuing firms, with firms losing an average of 41% of their market values around the filing and disclosure of misconduct. Bajaj, Gunny, and Sarin (2003), Helland (2004), Srinivasan (2005), and Fich and Shivdasani (2006) have used these class-action lawsuits to proxy for corporate financial fraud. Therefore, we use the incidence of these class-action lawsuits as a measure of the screening efficacy of underwriters.

Investors may have incentives to file frivolous lawsuits in hopes of some recovery. To discourage frivolous class-action litigation, Congress passed the Private Securities Litigation Reform Act (PSLRA) in 1995, which significantly increased the costs of filing weak claims. Johnson, Nelson, and Pritchard (2004) study the effect of PSLRA and conclude that it discouraged frivolous securities fraud lawsuits. We therefore restrict the sample to lawsuits filed after 1995. Nonetheless, class-action lawsuits are only an allegation of financial misconduct and not definitive proof of fraud. We attempt to control for obvious factors such as firm size and cash holdings that may attract frivolous lawsuits. However, to the extent that lawsuits are a noisy measure of underwriting screening, the precision of our tests is reduced.

2.5 *Empirical Tests and Methodological Design*

We jointly study the determinants of syndicate structure and the effect of syndicate structure and bank entry on certification incentives.

2.5.1 *Determinants of Syndicate Structure*

We argue that syndicate structure is determined as a trade-off between the certification incentives of underwriters and the distribution and lending benefits arising from the use of multiple lead underwriters. According to the reputation-breakdown hypothesis, we expect screening incentives to be lower in co-led syndicates because of the free-rider problem between the lead underwriters. Recognizing this, issuers would be more likely to select a sole underwriter when they require a high degree of certification. Thus, we expect that when the need for issuer certification and due diligence is high, issuers will opt for sole-led underwriting. We expect that riskier issues, for which default is of greater concern, will opt for sole-led offers. Smaller issuers, because they face greater informational asymmetries, will also be more likely to choose a sole underwriter. In addition, issuers with little or no past borrowing reputation will be more likely to select a sole underwriter. Because certification incentives are very important to issuers choosing sole underwriters, we further expect that underwriters with strong reputations will be involved in the sole-led offerings.

A co-led syndicate, in contrast, is more likely when issuers are of high quality and have strong borrowing reputations, reducing the need for strong underwriter certification. Since certification is less important for co-led offerings, we expect that there will be a lesser need for underwriter reputation and, thus, co-led offers will involve underwriters with weaker reputations.

Other considerations can also be important in the selection of syndicate structure. We expect larger issues to be more likely to involve co-led syndicates. Competition among underwriters is likely to be larger for larger issues and may result in a co-led syndicate. Issuers may also stand to benefit from the joint distribution or credit research capabilities offered by multiple underwriters for larger offerings. Finally, the provision of credit to issuers potentially affects which firms are awarded

underwriting mandates. Ljungqvist, Marston, and Wilhelm (2006) describe commercial banks that used their lending relationships and the commitment of credit facilities as a lever for winning securities underwriting business. According to this view, extension of credit became a frequent tool to acquire underwriting mandates. Therefore, we expect that firms with loans from underwriters are more likely to include multiple underwriters in their securities offerings.

2.5.2. Determinants of Screening Incentives

Our basic hypothesis is that the entry of commercial banks increased competition and lowered rents for all underwriters, thereby eroding incentives to screen issuer quality. Therefore, we predict that issuer quality (as measured by the ex-post realization of fraud litigation) will be negatively related to the degree of commercial bank entry.

We expect that highly reputable underwriters will have greater incentives to certify issuer quality. Hence, we predict that issuer quality will be positively related to underwriter reputation. Since reputational incentives are diluted in co-led syndicates, however, we also predict that underwriter reputation will display a weaker association with issuer quality in co-led syndicates than in sole-led offerings. In general, we expect co-led syndicates to be associated with lower issuer quality, because certification incentives are weaker in co-led syndicates.

We also examine whether the strength of underwriter relationships affects certification incentives. Underwriters have stronger incentives to screen issuing clients with which they have long-standing relationships because of the prospect of repeated business from these clients. We therefore postulate that issuer quality is positively related to the strength of the underwriter relationship. We note, however, that an alternative view is also consistent with this prediction. Under this alternative (but not mutually exclusive) view, when underwriters have repeated interactions with an issuer, they acquire issuer-specific knowledge over time and are better able to screen issuer quality.

3. Data and Variables

3.1. Sample Construction

The sample consists of industrial corporate bonds issued during 1996–2000. Though the regulatory change first allowed commercial banks entry into bond underwriting in 1987, significant relaxation of revenue caps did not occur till the end of 1996. Therefore, our sample period captures much more entry by banks than do earlier studies such as Gande, Puri, Saunders, and Walter (1997) and Gande, Puri, and Saunders (1999). In addition, as discussed earlier, using the post-1995 period also reduces the likelihood that our sample contains a significant proportion of frivolous lawsuits.

We obtain data on federal securities fraud class-action lawsuits during 1996–2003 from the Stanford Securities Class Action Clearinghouse, maintained in cooperation with Cornerstone Research. Consistent with prior studies examining financial fraud lawsuits, we find that the vast majority of the complaints in our lawsuits allege general financial reporting fraud; only a handful identify an individual security issue as the basis for seeking damages.

Firm characteristics, measured at the end of the year prior to bond issuance, are drawn from COMPUSTAT and CRSP. We collect data on prior lending relationships from the Dealscan database of the Loan Pricing Corporation. Loan amounts are aggregated for each bond issue if the issuing date is between the loan origination date and the loan maturity date. We calculate the loans to issuers extended by each underwriter in our sample using a pro-rata allocation of the total loan amount by each lender's share of the loan. When lender share data are unavailable, loans are assumed to be shared equally among the lenders.

We obtain issue characteristics, syndicate structure, and underwriter information from the Thomson Financial Securities Data (SDC Platinum) U.S. Corporate New Issues database. The sample includes fixed-rate nonconvertible domestic corporate bond issues, excluding non-utility and

non-financial firms (SIC codes of 6000–6999 and 4900–4999) and yields a list of 3,067 unique bond issues. After screening for missing data on CRSP and on COMPUSTAT, we are left with 2,756 bond issues and 607 unique issuers.

Of the 2,756 bond issues in the sample (Table 1), 31.2% have a lead commercial bank underwriter, either as a sole underwriter or as part of a co-led syndicate. Two patterns stand out in the data. During the sample period, commercial banks gained significant market share at the expense of investment banks, increasing their share from 21% in 1996 to 55% by the end of 2000. At the same time, co-led syndicates became common, rising from 2% of all issues in 1996 to almost 35% of all issues by 2000.

To test the effects of bank competition, we calculate the market share of commercial banks for all industries using two-digit SIC codes. In subsequent tests, this variable is used to proxy for the intensity with which banks competed for underwriting mandates within the industry. We also construct a binary variable to denote industries with high bank entry. We define a high-bank-entry industry as one in which commercial banks have a market share in bond underwriting of at least 30%. Industries in which banks have a less than 30% market share are considered to be low-bank-entry industries. We chose the 30% cutoff because it approximates the median industry market share achieved by commercial banks by the end of 2000.

3.2. *Variables*

Measures of Underwriter Reputation: We measure the reputation of underwriters by their market share, following Megginson and Weiss (1991). For each underwriter, we calculate the number of issues brought to market by an underwriter in a year as a fraction of the total number of bond issues in that year. In the case of co-led issues, we allocate market share for the issues proportionally among the lead underwriters to avoid double-counting market share for these

underwriters. We apply this approach in all calculations involving market share and measures of bank entry and penetration.

We do not use the Carter-Manaster rankings of underwriter reputation because they cannot be calculated for the newly entering commercial banks. Further, Carter-Manaster rankings are more suited to the measurement of reputation in the equity markets, since they are based on IPO placements, rendering them less relevant for bond underwriters.

Measures of Issuer Reputation: We use two measures of issuer reputation that capture the frequency with which issuers visit capital markets for bond offerings. We use the number of bond issues over the past five years as well as a “New Issuer” indicator that takes the value 1 if the observation represents the first time an issuer is visiting public debt markets within the past 20 years.

Measures of Relationship Strength: We expect that underwriters that have repeated interactions with an issuer acquire more information on that client’s quality over time, giving them more precise signals. A strong relationship with an issuer can also help overcome the moral hazard problem for the underwriter, because the issuer’s default will be more costly in terms of lost future revenues. Therefore, we expect that issuer quality is an increasing function of the strength of the issuer-underwriter relationship. We measure relationship strength as the number of different lead underwriters used in prior bond or equity issuances within the five-year period prior to the current bond issuance. The larger the number of prior underwriters, the weaker is the strength of an individual relationship.

3.3. Evolution of Syndicate Structure and Underwriting Fees

In Table 2 we describe syndicate structure in more detail. Of the 2,362 sole-led offers in the sample, 591 (25%) are led by a commercial bank entrant, while the remaining 1,771 offers (75%) are underwritten by a single investment bank. Of the co-led offers, the majority (56%) represent a coalition between an investment bank and a commercial bank, but offers co-led by multiple

investment banks are not uncommon (32%). Co-led offers in which all underwriters are commercial banks tend to be infrequent (12%). Co-led offers typically involve two underwriters, but in a few rare cases, four or even seven underwriters are represented in a single offer.

Average bond underwriting fees drop by almost half over the five-year sample period, from 1.06% of issue amount in 1996 to 0.56% in 2000 (Table 3, Panel A). Fees drop in both the investment-grade and the high-yield markets. Among investment-grade issues, the average fee declines by about 23%, from 66 basis points to 51 basis points, while the drop is much steeper for high-yield issues, from 2.2% in 1996 to 1.45% by 2000. The sharper drop in fees for high-yield issues is consistent with the pattern shown by Puri (1996) in which commercial banks specialized in bringing higher-risk issues to market, suggesting that their entry intensified the competition among underwriters for high-yield issues.⁴

We examine more directly whether intensified competition from bank entry is responsible for the change in fee structure. Table 3, Panel B compares the change in underwriters' fees during our sample period, broken down by the degree of industry penetration by commercial banks. This breakdown shows that the drop in fees is driven almost entirely by the high-bank-entry industries. In 1996, fees for both investment-grade and high-yield bonds are very similar across high- and low-bank-entry industries. By 2000, fees for both investment-grade and high-yield bonds drop substantially for high-bank-entry industries, but the changes are much smaller for low-entry industries. For example, average fees for high-yield issues drop from 2.38% of issue size to 1.33% for high-entry industries, but the corresponding change is negligible for low-entry industries. Thus,

⁴ Gande et al. (1999) also show that from 1985 to 1996, underwriting fees dropped for both investment-grade and high-yield bonds. However, consistent with much greater entry by banks during the subsequent five-year period that we examine, fees drop much more sharply in our sample. Over their 12-year sample period, they document a 20% drop in investment-grade fees and a 25% drop in high-yield fees. The corresponding decreases over our five-year period are 23% and 33%, respectively.

increased competition by commercial banks significantly compresses the fees for bond underwriting.⁵

3.4. Issuer Quality and the Incidence of Shareholder Class-Action Lawsuits

Among the 2,756 bonds, 447 are issued by clients that are sued within three years of the bond issue (Table 4, Panel A). Over the five-year span of our sample, 16.2% of issues face a shareholder class-action lawsuit, and the frequency of these lawsuits is slightly higher in the last two years of the sample. We find that the incidence of lawsuits varies across syndicate structure and extent of bank penetration in the industry (Table 4, Panel B). Co-led issues experience a higher frequency of lawsuits. In our sample, 24.1% of co-led issues are sued, compared to 14.9% of issues that are sole-underwritten.

If bank entry diminishes future profitability and incentives to preserve reputation, the incidence of lawsuits should be higher in industries in which banks achieve high penetration. This is exactly what we observe. In high-entry industries, 20.4% of issues face a fraud lawsuit, but this proportion is only 12.9% in low-entry industries. According to the reputation-breakdown hypothesis, the reduction in screening incentives is greater in co-led syndicates, and the data support this hypothesis. In high-bank-entry industries, sole-led issues have a 18% frequency of fraud lawsuits compared to a 31.2% frequency for co-led issues.

4. Determinants of Syndicate Form, Bank Entry, and Issuer Quality

We turn to more formal tests of our hypotheses. Our basic proposition is that bank entry eroded economic rents for all underwriters, thereby lowering their incentives to screen client quality.

⁵ Our comparison is intended only to illustrate the competitive effects arising from bank entry; we do not explore the determinants of fee structure for commercial and investment banks. Gande et. al. (1999) study the fees charged by commercial and investment banks and do not find significant differences between the two types of underwriters. Yasuda (2005) studies the effect of lending relationships on fees and finds that commercial banks offered price discounts to firms with which they had lending relationships.

Therefore, we expect that high bank entry led to more low-quality issuers entering the bond market. We test this proposition by estimating whether the probability of a lawsuit increases with the degree of penetration by banks within an industry.

Two important issues deserve attention. First, as discussed earlier, syndicate structure evolved considerably during our sample period to include co-led syndicates. Based on the reputation-breakdown hypothesis, we expect that screening incentives would be lower in co-led syndicates. However, issuers would recognize that incentives are different in co-led syndicates and would choose syndicate structure based upon their need for certification. Thus, the endogeneity of syndicate structure needs to be addressed. The second issue is the potential endogeneity of bank entry. It is likely that bank entry is not a random decision. If banks compete more intently for riskier issuers, as suggested by Puri (1996), and if these issuers are more likely to be sued, failure to account for the potential endogeneity of bank entry will bias our results.

4.1. Univariate Comparison across Syndicate Structure

In Table 5 we present a univariate comparison of sole-led and co-led syndicates. Confirming earlier results, co-led syndicates are observed in industries with greater bank penetration. Consistent with the reputation-breakdown hypothesis, we also find that underwriter reputation is lower in co-led syndicates. On average, the market share of a sole underwriter is 11.3%, compared to 8.2% for co-led underwriters. Issuers choosing sole underwriters are more frequent issuers, but the aggregate volume of debt capital raised over the past five years appears to be similar for sole-led and co-led issuers. The data support the idea that commercial banks enter the underwriting business by leveraging their commercial banking relationships to win co-lead mandates. We find that the average co-led issuer has a much higher fraction of bank loans in their capital structure than sole-led issuers. Following the approach in Yasuda (2005) and Ljungqvist, Marston, and Wilhelm (2006), we measure loans from underwriters and find that lending relationships are more extensive for co-led issues.

We measure issue risk using Moody's credit ratings and employ a 17-point numeric scale, denoting Aaa as 1, Aa1 as 2, and so on, with lower numeric values corresponding to higher credit ratings. We find that sole-led issues have better credit ratings than co-led issues and that larger issues are more likely to have multiple lead underwriters; this is consistent with our expectation that multiple underwriters provide more efficient distribution capabilities for large issue sizes.

4.2. *Univariate Comparison of Sued and Non-sued Issuers*

As a first step towards an understanding of the determinants of issuer quality, we compare the characteristics of issuers that are sued within three years of issuance to those that are not sued for fraud (Table 6). Sued clients reside in industries with higher commercial bank penetration. This is consistent with the increased-competition hypothesis. An alternative explanation is that commercial banks specialize in bringing riskier issues to market, as suggested by Puri (1996), and it is possible that riskier issuers are more likely to be sued. We address these alternative explanations in a multivariate framework below.

Other univariate comparisons support the argument in Chemmanur and Fulghieri (1994) that issuer reputation is an important incentive device for certification. We find that the incidence of lawsuits is greater for lower-reputation underwriters, consistent with the idea that such underwriters are less stringent in screening issuer quality. We also find that sued firms have raised more capital, both in the form of debt and equity, over the preceding five years. This finding on equity financing volumes is similar to that of DuCharme, Malatesta, and Sefcik (2004), who show that firms conducting seasoned equity offerings tend to engage in earnings management and are more likely to be sued subsequently.

Issue and issuer characteristics also vary across the two subsamples. Sued firms are larger, are more levered, have more cash, and have higher credit ratings. Issue size, measured by proceeds, tends to be larger, and the maturity of the issue tends to be shorter for sued firms. We find only weak

evidence (at the 10% level using a non-parametric test) that sued firms borrow more extensively from banks.

4.3. *Multivariate Analysis of Syndicate Structure, Bank Entry, and Lawsuits*

4.3.1. *Bivariate Probit Model*

To address the endogeneity of the syndication decision, we employ a bivariate probit model to estimate both the issuing-client lawsuit incidence and the syndicate structure simultaneously. In this model, we are interested in whether industries that faced intense competition from banks experienced more lawsuits, and we treat the degree of bank penetration within an industry as exogenously determined. To address the potential endogeneity of bank entry, we also estimate a second bivariate probit model in which we estimate the presence of a bank underwriter and the lawsuit probability simultaneously.

The bivariate probit model is specified as follows (see Heckman [1978], p. 934, and Greene [1993], pp. 660–663):

$$y_1^* = \beta_1' X_1 + \varepsilon_1, \quad y_1 = 1 \text{ if } y_1^* > 0, 0 \text{ otherwise}, \quad (1)$$

$$y_2^* = \beta_2' X_2 + \delta y_1^* + \varepsilon_2, \quad y_2 = 1 \text{ if } y_2^* > 0, 0 \text{ otherwise}, \quad (2)$$

$$E[\varepsilon_1] = E[\varepsilon_2] = 0, \quad (3)$$

$$Var[\varepsilon_1] = Var[\varepsilon_2] = 1, \quad (4)$$

$$Cov[\varepsilon_1, \varepsilon_2] = \rho, \quad (5)$$

where y_1^* is the underlying value of syndication decision (bank entry), and y_1 is a dummy variable taking the value 1 if the bond issuance is underwritten by a co-led syndicate and 0 otherwise. In its simplest framework, one can view y_1^* as the client's potential for committing fraud. In practice, this latent variable is not observed, but one knows whether or not the latent variable y_1^* has crossed a

threshold level, i.e., in the event of $y_1^* > 0$, one observes co-led syndicates (or high bank entry). Therefore, a co-led syndicate (or high bank entry) serves as a proxy for a client's high potential for wrongdoing, but it does not cause a higher probability of litigation per se. It is the underlying latent variable that leads to a lawsuit ex-post. The variable y_2^* is the underlying value of the lawsuit decision; y_2 is a dummy variable taking the value 1 if the bond issuer is sued for alleged financial reporting fraud and 0 otherwise. Variables vectors X_1 and X_2 are exogenous firm and issue characteristics, respectively. The model is estimated as a seemingly unrelated bivariate probit model with underwriter borrowings serving as an instrumental variable. The error terms (ε_1 and ε_2) are bivariate normal.

4.3.2. Joint Determinants of Syndication Decision and Litigation Probability

Table 7 reports the results of the bivariate probit model. The first equation predicts the determinants of the syndicate structure. We find that the probability of observing a co-led syndicate is higher in industries with high bank penetration, consistent with the idea that competition from commercial banks leads issuers to opt for multiple underwriters for their debt offerings. Supporting this, we find that high levels of loans from underwriting banks increase the probability of co-led syndicates. We also find that underwriter reputation is lower for co-led syndicates. The evidence on issuer reputation is mixed, however. First-time issuers are more likely to opt for a sole underwriter, reflecting the need for strong underwriter certification, but issuers that have raised debt more frequently over the past five years are also more likely to opt for a sole underwriter. Consistent with the need for strong certification by riskier issuers, we find that lower-rated issues are more likely to be brought to market by a sole underwriter. Overall, these results support the idea that co-led syndicates provide advantages of stronger distribution capability and reflect the closer relationships

with commercial banks, weighed against the costs of free-riding that arise between multiple underwriters.

The second equation in model 1 predicts the probability that the issuer is sued for financial fraud within three years of bond issuance. The results support both the increased-competition and the reputation-breakdown hypotheses. The market share of commercial banks within the issuer's industry displays a significantly positive coefficient estimate. This result is consistent with the increased-competition hypothesis, which postulates that intensified competition resulting from bank entry lowers incentives for underwriters to screen client quality.

The results on underwriter reputation are also supportive of the reputation-breakdown hypothesis. We find that high underwriter reputation is associated with a lower probability of a lawsuit, suggesting that highly reputable underwriters have strong incentives to screen issuers. Consistent with the view that free-rider problems lower screening incentives when multiple lead underwriters are present, lawsuit probability is higher for co-led syndicates. We also find that lawsuits are less likely when issuers maintain relationships with fewer underwriters. Since working with few underwriters implies stronger relationships, this result indicates that lawsuits are less likely when the firm has a strong relationship with its underwriter.

Among the variables measuring issuer reputation, we find that new issuers are more likely to be sued, but the number of bond issuances over the past five years is not a significant predictor of lawsuits. Consistent with DuCharme, Malatesta, and Sefcik (2004), lawsuit probability is positively related to prior equity issuance. We also find that larger issues and those by firms with higher leverage and more cash are more likely to be targets of fraud lawsuits.

In model 2 of Table 7, we evaluate the role of incentives across syndicate structure in more detail. Based on the competition and the reputation hypotheses, we expect screening incentives to be the weakest in the face of high industry competition and when there are multiple lead underwriters in a syndicate. Consistent with this joint prediction, we find that the probability of a lawsuit is higher

when co-led syndicates are observed in high-bank-entry industries. While the coefficient on co-led syndicates in low-bank-entry industries is also positive, it lacks statistical significance. Model 2 also shows that high underwriter reputation is associated with lower lawsuit incidence only in sole-underwritten offers. The lack of significance of underwriter reputation in co-led offers is consistent with the reputation-breakdown hypothesis and suggests that reputational concerns are less important in groups.

The effects we uncover are of meaningful economic magnitude. Using the estimates from model 2, a 1% increase in the market share of commercial banks within an industry increases the probability of a lawsuit by 0.17%. In the syndication equation, the same increase in commercial bank market share increases the probability of a co-led syndicate by 0.08%. The joint effect of commercial bank entry and syndicate structure is particularly large. In high-bank-entry industries, a co-led syndicate increases the probability of a lawsuit by 18%, all else being held equal.

4.3.3. Joint Determinants of Bank Entry and Litigation Probability

Up to this point, we have treated bank entry across industries as being exogenous. A more realistic approach is to recognize that commercial banks act strategically and choose to compete in industries in which their potential gains from entry would exceed their costs. Therefore, we now employ an alternative estimation strategy in which we treat bank underwriting as endogenous and jointly estimate the lawsuit probability and the probability that the lead underwriter (in either a sole-led or a co-led offering) is a commercial bank, using the bivariate probit specification.

The top panel of Table 8 displays estimates for the first equation, in which the dependent variable equals 1 if the lead underwriter is a commercial bank. We find strong evidence that a commercial bank is more likely to be used as lead underwriter if the issuer has a greater reliance on loans from underwriters. Similar evidence of the significant effect of lending relationships on underwriter choice is also shown by Ljungqvist, Marston, and Wilhelm (2006). We find that banks

are also more likely to be underwriters if total bond issuance volume is high in the industry, suggesting that banks compete more actively in industries that provide more revenue opportunities. Banks are also less likely to be selected for larger issues, consistent with the idea that, as new entrants, their distribution capabilities for larger issues are less developed. As in Puri (1996), we find that banks specialize in bringing smaller issuers to market.

The lower panel of Table 8 presents the estimates for the second equation which predicts lawsuit probability. Consistent with earlier results, the degree of penetration of commercial banks within the industry is strongly related to lawsuit probability. In model 1, the coefficient estimate on the market share of commercial banks is positive and significant at the 1% level. In model 2, bank competition is measured by an indicator that equals 1 if the firm is in a high-bank-entry (i.e., bank market share $\geq 30\%$) industry. This variable is also positive and significant at the 1% level. From an economic perspective, a 1% increase in the market share of commercial banks implies an increase of 0.28% in the probability of a lawsuit, based on model 1. The estimates of model 2 imply that lawsuit probability is 7% higher in high-bank-entry industries than in low-bank-entry industries. Since the unconditional probability of a lawsuit in the sample is 16%, the effect of bank entry is of substantial economic importance.

The specification of the other variables in the lawsuit equation follows that of Table 7, and the results are similar. As before, we find that lawsuit probability is negatively associated with underwriter reputation and the strength of the issuer-underwriter relationship but is positively related to prior equity issuance, firm size, issue size, leverage, cash holdings, and the new-issuer indicator variable.

5. Conclusions

The entry of commercial banks into securities underwriting during the 1990s has significantly changed the competitive nature of these markets. Commercial banks have gained substantial market share from traditional investment banks, and by the end of 2000, five of the top ten bond underwriters were commercial banks. This paper examines how the intensified competition due to bank entry affected the production of information and the screening standards of bond underwriters.

We show that industries with higher levels of bank entry witnessed a significant drop in underwriter fees. We also document the evolution of co-led syndicate structures that allow issuers to use multiple lead underwriters for an issue. Our analysis of how the formation of groups affects the incentives of underwriters to maintain reputation shows that the syndication decision is endogenous, with issuers balancing the benefits of multiple underwriters against the free-riding incentives in a co-led syndicate structure.

Recognizing the endogeneity of bank entry and the syndication decision, we show that high levels of bank entry are associated with a higher probability of subsequent shareholder litigation, consistent with a reduction in screening incentives after increased competition. This result adds to the literature debating the economic effects of financial deregulation that led to the integration of commercial and investment banking in the United States. More broadly, our findings point to the importance of the value of relationships and reputational concerns for financial intermediaries and illustrate how market competition affects the information production process and the interaction between financial intermediaries and their clients.

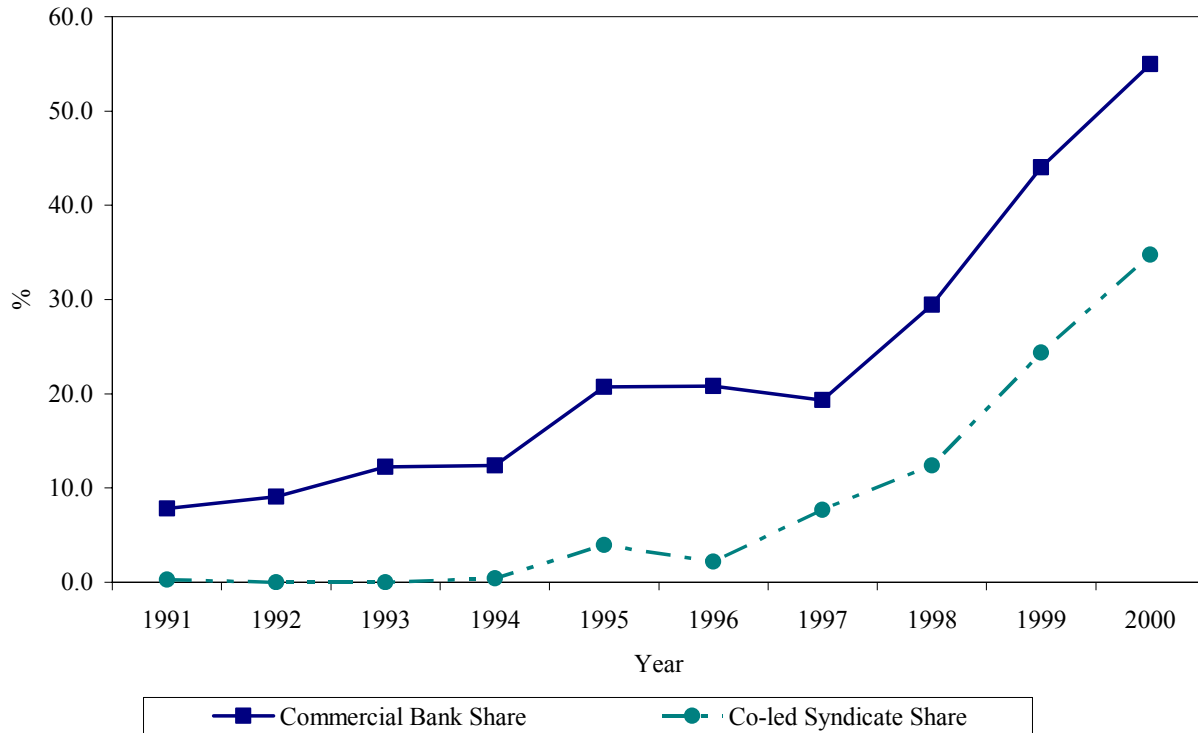
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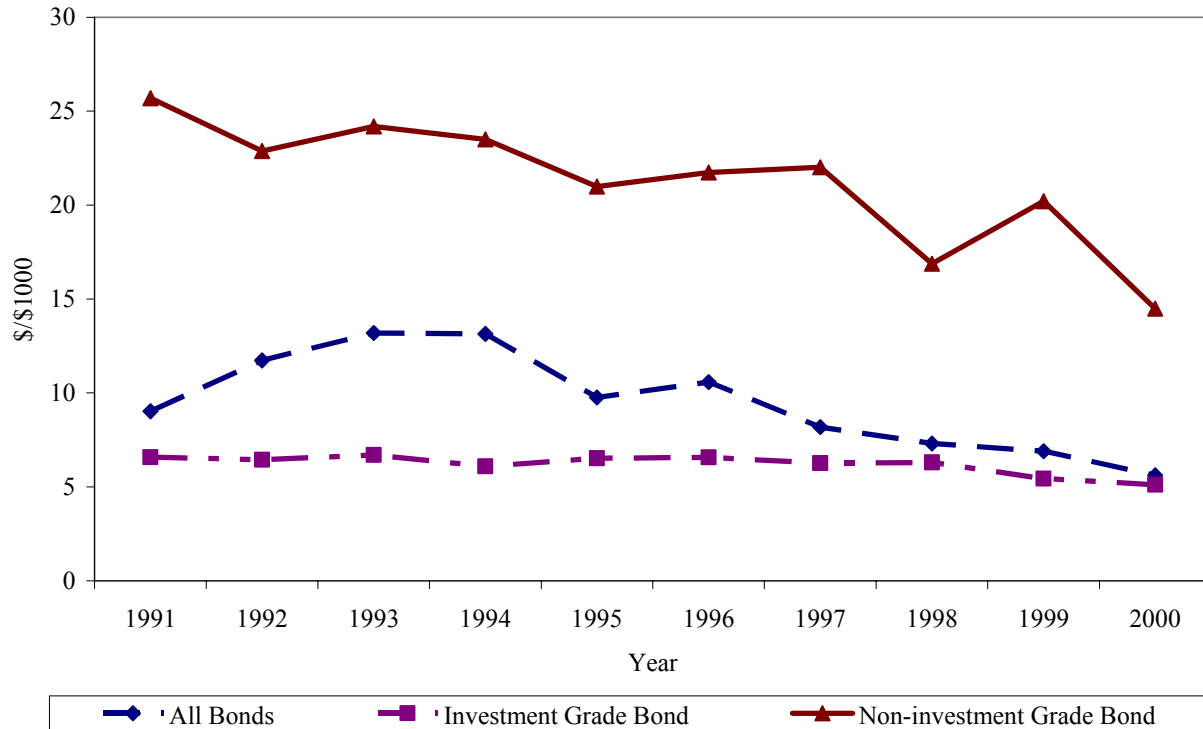
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Figure 1 Commercial Bank Entry and Co-led Syndicate Share



The sample consists of bonds issued by industrial firms during 1991–2000. Commercial bank underwriters are those with Section 20 subsidiaries. Co-led syndicates are syndicates led by more than one lead underwriter. Bank share is the yearly total number of all commercial bank lead underwriting bonds as a percentage of total number of bonds issued in the same year.

Figure 2 Mean Underwriting Fees by Credit Ratings



The sample consists of bonds issued by industrial firms during 1991–2000. The underwriting fees include the management fee, the underwriting fee, and the selling concession and are represented for each \$1000 of bond issue amount. Investment-grade bonds are those with Moody’s credit ratings of Baa or above. Non-investment-grade bonds are those with Moody’s credit ratings of Ba or below.

Table 1
Frequency distribution of sample by year

The sample consists of bonds issued by industrial firms during 1996–2000. Commercial bank underwriters are those with Section 20 subsidiaries. Co-led syndicates are syndicates led by more than one lead underwriter. Bank share is the yearly total number of all commercial bank lead underwriting bonds as a percentage of total number of bonds issued in the same year, classified by 2-digit SIC code.

	All bonds	Bonds underwritten by commercial banks		Bonds underwritten by co-led syndicates	
	No. of observations	No. of observations	% of all bonds	No. of observations	% of all bonds
1996	500	104	20.8	11	2.2
1997	662	128	19.3	51	7.7
1998	775	228	29.4	96	12.4
1999	468	206	44.0	114	24.4
2000	351	193	55.0	122	34.8
1996-2000	2756	859	31.2	394	14.3
Low-bank-entry industries (1996–2000) Bank share < 30%	1535	246	16.02	173	11.27
High-bank-entry industries (1996–2000) Bank share ≥ 30%	1221	613	50.20	221	18.10
Difference between low and high bank entry (z-test)			-19.24***		-5.1***

*, **, *** Significant at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 2
Distribution of syndicate structure

The sample consists of bonds issued by industrial firms during 1996–2000. Commercial bank underwriters are those with Section 20 subsidiaries. Co-led syndicates are syndicates led by more than one lead underwriter. The mean number of underwriters in a co-led syndicate is 2.23, and the median is 2.

	No. of observations	%
Sole-led syndicate		
Led by investment bank	1771	74.98
Led by commercial bank	591	25.02
Total	2362	100.00
Co-led syndicate		
Led by investment bank only	126	31.98
Led by investment bank and commercial bank	220	55.84
Led by commercial bank only	48	12.18
Number of lead underwriters		
2	325	82.49
3	57	14.47
4	7	1.78
5	3	0.76
7	2	0.51
Total	394	100.00

Table 3
Underwriting fees by investment grade, commercial bank entry, and year

The sample consists of bonds issued by industrial firms during 1996–2000. Underwriting fee is dollars charged for each \$1000 of bond issue, including management fee, underwriting fee, and selling concession. Low (high) bank entry indicates bond issues in the industries in which commercial bank share is less than (is greater than or equal to) 30%. Bank share is the yearly total number of all commercial bank lead underwriting bonds as a percentage of total number of bonds issued in the same industry, classified by 2-digit SIC code. The difference between two groups in means (distribution) is tested using a *t*-test (Wilcoxon rank-sum test).

		All bonds			Investment-grade bonds			Non-investment-grade bonds		
		Obs.	Mean	Median	Obs.	Mean	Median	Obs.	Mean	Median
Panel A: Year										
1996		345	10.57	6.5	254	6.57	6.5	91	21.73	25
1997		436	8.18	6.5	383	6.26	6.5	53	22.01	25
1998		622	7.31	6.5	563	6.30	6.5	59	16.88	15
1999		383	6.90	6.3	345	5.44	6.0	38	20.21	20
2000		258	5.62	6.0	244	5.11	6.0	14	14.48	15
1996	Low bank entry	270	10.65	6.5	194	6.46	6.5	76	21.33	24.8
	High bank entry	75	10.30	6.5	60	6.94	6.5	15	23.77	27.5
2000	Low bank entry	50	7.32	6.5	48	6.72	6.5	2	21.77	21.8
	High bank entry	208	5.21	4.6	196	4.71	4.5	12	13.27	14.4
Panel B: Differences between 1996 and 2000										
		All bonds		Investment-grade bonds		Non-investment-grade bonds				
		<i>t</i> -test	<i>z</i> -test	<i>t</i> -test	<i>z</i> -test	<i>t</i> -test	<i>z</i> -test			
All industries		8.96 ^{***}	9.43 ^{***}	7.24 ^{***}	6.67 ^{***}	2.86 ^{***}	2.70 ^{***}			
Low bank entry		2.76 ^{***}	1.35	-0.79	-1.24	-0.07	0.095			
High bank entry		7.36 ^{***}	7.23 ^{***}	6.43 ^{***}	6.40 ^{***}	3.20 ^{***}	2.74 ^{***}			

, **, *** Significant at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 4
Frequency distribution of class-action lawsuits

The sample consists of bonds issued by industrial firms during 1996–2000. Sued indicates bonds issued within three years prior to the bond-issuing clients' being sued (those that were subject to securities fraud class actions during 1996–2003). Low (high) bank entry indicates bond issues in the industries in which commercial bank share is less than (is greater than or equal to) 30%. Bank share is the yearly total number of all commercial bank lead underwriting bonds as a percentage of total number of bonds issued in the same industry, classified by a 2-digit SIC code. Sole-led (co-led) syndicate is a syndicate led by one (more than one) lead manager. Last column reports z -test. The null hypothesis is that the proportions of bonds issued by sued clients do not differ between bank entry types or syndicate types.

	No. of obs.	Sued (#)	Sued (%)	Difference in proportion z -test	
Panel A: By year					
1996	500	76	15.2		
1997	662	74	11.2		
1998	775	118	15.2		
1999	468	113	24.1		
2000	351	66	18.8		
Total	2,756	447	16.2		
Panel B: By bank entry and syndicate type					
Investment bank underwriting bonds	2,015	314	15.6		
Commercial bank underwriting bonds	741	133	17.9	-1.49	
Low bank entry	1,535	198	12.9		
High bank entry	1,221	249	20.4	-5.30	***
Sole-led syndicate	2,362	352	14.9		
Co-led syndicate	394	95	24.1	-4.59	***
Low bank entry X Sole-led syndicate	1,362	172	12.6		
High bank entry X Co-led syndicate	221	69	31.2	-7.14	***
Low bank entry X Co-led syndicate	173	26	15.0		
High bank entry X Sole-led syndicate	1,000	180	18.0		

* , ** , *** Significant at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 5
Univariate comparison by syndicate type

The sample consists of bonds issued by industrial firms during 1996–2000. Sole-led (Co-led) syndicate is a syndicate led by one (more than one) lead underwriter. The amounts of loan deals are aggregated for each bond issue if the issuing date is between the loan origination and maturity date. Loans from commercial bank underwriters (underwriter loans) are prorated based on lender share or on loan syndicate size where lender share information is not available. Tobin’s q is defined as the market value of equity plus total debt divided by total assets. Moody’s credit ratings of Aaa equals 1, Aa1 equals 2, and so forth. Non-rated bonds are not included in the calculation of mean and median credit ratings. The difference in mean (distribution) between groups is tested by a t -test (Wilcoxon test). The significance level is indicated under “Sole-led syndicate.”

	Sole-led syndicate			Co-led syndicate		
	Obs.	Mean	Median	Obs.	Mean	Median
<i>Bank entry</i>						
Commercial bank underwriting share in industry (%)	2,362	26.11 ***	21.57 ***	394	31.90	33.75
<i>Underwriter and issuer reputation</i>						
Underwriter reputation (yearly issue share, %)	2362	11.33 ***	13.1 ***	394	8.18	6.7
Number of bonds issued within prior 5 yrs.	1,994	20.85 ***	9 ***	290	9.58	5
Total amount of bonds issued within prior 5 yrs. (\$mm)	1,994	1664.46	700	290	1766.14	1050
<i>Firm characteristics</i>						
Market value of equity (\$bn)	2,209	18.73	5.40	372	19.97	4.67
Tobin’s q	2,180	1.41 *	1.10 *	354	1.58	1.13
Bank loans/total assets (%)	1,945	36.60 ***	22.75 ***	333	54.90	27.65
Underwriter loans/total assets (%)	514	6.12	1.84 ***	165	7.24	3.72
<i>Issue characteristics</i>						
Issue size (\$mm)	2,362	132.15 ***	100 ***	394	460.80	300
Credit ratings	2,348	7.30 **	7 ***	388	7.63	8

*, **, *** Significant at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 6
Univariate comparisons of sued and non-sued clients and their bond issues

The sample consists of bonds issued by industrial firms during 1996–2000. Sued indicates bonds issued within three years prior to the clients’ being sued (firms subject to securities fraud class actions during 1996–2003). The amounts of loan deals are aggregated for each bond issue if the issuing date is between the loan origination and maturity dates. Loans from commercial bank underwriters (underwriter loans) are prorated based on lender share or on loan syndicate size where lender share information is not available. Tobin’s q is defined as the market value of equity plus total debt divided by total assets. Net yield (basis point spread) is the premium of the ex-ante yield spread of a bond over the ex-ante yield of a U.S. Treasury security of similar maturity. Underwriting fee is dollars charged for each \$1000 of bond issue, including management fee, underwriting fee, and selling concession. Moody’s credit ratings of Aaa equals 1, Aa1 equals 2, and so forth. Non-rated bonds are not included in the calculation of mean and median credit ratings. The difference between two groups in means (distribution) is tested by a t -test (Wilcoxon rank-sum test). The significance level is indicated under “Sued.”

	Sued			Non-sued				
	Obs.	Mean	Median	Obs.	Mean	Median		
<i>Bank entry</i>								
Commercial bank underwriting share in industry (%)	447	31.14	***	32.35	***	2309	26.13	21.57
<i>Underwriter and issuer reputation</i>								
Underwriter reputation (yearly issue share, %)	447	9.83	***	10.60	***	2309	11.08	11.56
Number of bonds issued within prior 5 yrs.	382	20.34		14.00	***	1902	19.23	8.00
Total amount of bonds issued within prior 5 yrs. (\$mm)	382	2924.75	***	2238.78	***	1902	1426.85	642.75
Number of equity issues over prior 5 yrs.	146	1.45		1.00		582	1.40	1.00
Total amount of equity issued over prior 5 yrs. (\$mm)	146	674.15	***	362.20	***	582	393.59	210.00

* , ** , *** Significant at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 6 (continued)

	Sued			Non-sued		
	Obs.	Mean	Median	Obs.	Mean	Median
<i>Firm characteristics</i>						
Market value of equity (\$bn)	442	27.95 ***	13.83 ***	2139	17.04	4.82
Tobin's q	439	1.53	1.13 ***	2095	1.41	1.10
Total debt/total assets (%)	441	35.81 ***	32.73 ***	2238	32.84	30.35
Operating income/total assets (%)	404	14.86	12.62	2238	14.50	14.81
Cash/total assets (%)	441	6.36 ***	2.15 *	2229	4.43	2.42
Bank loans/total assets (%)	419	37.28	26.85 *	1859	39.73	22.61
Underwriter loans/total assets (%)	142	3.35 ***	1.34 ***	537	7.20	2.66
<i>Issue characteristics</i>						
Underwriting fees (\$/\$1000)	327	6.64 ***	6.25 ***	1717	7.97	6.50
Issue maturity (years)	447	10.34 **	7.10 ***	2309	11.68	10.00
Issue size (\$mm)	447	284.24 ***	150.00 ***	2309	158.78	100.00
Credit ratings	442	7.00 ***	7.00 **	2294	7.42	7.00

*, **, *** Significant at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 7**Bivariate probit analysis of bond issuers' lawsuit incidences and syndication decision**

We specify the two equations in the bivariate probit model as follows (see Heckman [1978] and Greene [1993]):

$$y_1^* = \beta_1' X_1 + \varepsilon_1, \quad y_1 = 1 \text{ if } y_1^* > 0, \text{ 0 otherwise,} \quad (1)$$

$$y_2^* = \beta_2' X_2 + \delta y_1^* + \varepsilon_2, \quad y_2 = 1 \text{ if } y_2^* > 0, \text{ 0 otherwise,} \quad (2)$$

$$E[\varepsilon_1] = E[\varepsilon_2] = 0, \quad (3)$$

$$Var[\varepsilon_1] = Var[\varepsilon_2] = 1, \quad (4)$$

$$Cov[\varepsilon_1, \varepsilon_2] = \rho, \quad (5)$$

where y_1^* is the underlying value of syndication decision and y_1 is a dummy variable taking the value 1 if the bond issuance is underwritten by a co-led syndicate and 0 otherwise. The variable y_2^* is the underlying value of the lawsuit decision; y_2 is a dummy variable taking the value 1 if the bond issuer is sued for alleged financial reporting fraud and 0 otherwise. Variables vectors X_1 and X_2 are exogenous firm and issue characteristics, respectively. The error terms $\varepsilon_1, \varepsilon_2$ are bivariate normal. The sample consists of bonds issued by non-sued firms during 1996–2000 and bonds issued by sued firms within three years prior to the firms' being sued (firms subject to securities fraud class actions during 1996–2003). The first dependent variable equals 1 if the bond issuance is underwritten by a co-led syndicate and 0 otherwise. The second dependent variable equals 1 if a bond issuer is sued in a securities fraud class-action lawsuit, 0 otherwise. Model 1 is the base model. Model 2 contains the variable interactions: (a) it allows co-led syndicates to have different slopes in high- versus low-bank-entry industries; (b) it allows underwriter reputation to have different slopes in sole- versus co-led syndicates. High bank entry indicates the industries in which commercial bank share is larger than or equal to 30%. Test inference is based on robust standard errors of White (1980). The amounts of loan deals are aggregated for each bond issue if the issuing date is between the loan origination and maturity dates. Loans from commercial bank underwriters (underwriter loans) are prorated based on lender share or on loan syndicate size where lender share information is not available. Credit ratings are from Moody's using a 17-point numeric scale, where Aaa equals 1, Aa1 equals 2, and so forth. Prior one-year stock return is issuing firm's buy-and-hold stock return in excess of CRSP equally weighted index during the year prior to current bond issuance. Industry dummies based on one-digit SIC codes (2, 3, 4, 5, 7, and 8), yearly dummies, and intercept are included, but the results are not reported.

Table 7 (continued)

	Model 1			Model 2		
	Est.	z-test		Est.	z-test	
Dependent variable: Co-led syndicate = 1						
Commercial bank underwriting share/100	0.89	4.48	***	0.87	4.42	***
Underwriter reputation (issue share/100)	-7.04	-8.79	***	-7.13	-8.99	***
Ln(1 + underwriter loans)	0.03	4.57	***	0.03	4.52	***
Ln(1 + no. past bond issues)	-0.16	-3.54	***	-0.16	-3.52	***
Ln(1 + issue size)	0.64	13.1	***	0.64	13.11	***
Ln(1 + market value of equity)	-0.04	-1.15		-0.04	-1.16	
New issue (indep. var.)	-0.31	-2.4	**	-0.31	-2.41	**
Credit ratings	-0.04	-2.8	***	-0.04	-2.78	***
Dependent variable: Sued bond issuer = 1						
Co-led syndicate (indep. var.)	0.62	2.67	***			
Co-led syndicate in low-bank-entry industry (indep. var.)				0.26	0.9	
Co-led syndicate in high-bank-entry industry (indep. var.)				0.60	2.32	**
Commercial bank underwriting share/100	0.87	3.81	***	0.75	3.15	***
Underwriter reputation (issue share/100)	-1.44	-2.07	**			
Sole-led syndicate underwriter reputation				-1.80	-2.5	***
Co-led syndicate underwriter reputation				-0.03	-0.01	
Ln(1 + prior underwriter relationships)	0.31	2.46	***	0.31	2.42	**
Prior one-year stock return	-0.16	-1.88	*	-0.16	-1.97	**
Ln(1 + no. past bond issues)	0.00	0.01		0.01	0.13	
Ln(1 + no. past equity issues)	0.29	3.46	***	0.28	3.28	***
Ln(1 + issue size)	0.08	2.38	**	0.08	2.44	**
Ln(1 + market value of equity)	0.16	4.43	***	0.16	4.32	***
Total debt/total assets * 100	0.02	4.47	***	0.02	4.53	***
Cash/total assets * 100	0.03	4.39	***	0.03	4.51	***
New issue (indep. var.)	0.58	4.05	***	0.56	3.93	***
Credit ratings	0.01	0.53		0.01	0.53	
ρ : correlation between ε_1 and ε_2	-0.32			-0.31		
Wald test of Chi-square ($\rho = 0$)	5.53			5.07		
p-value of Wald test of Chi-square ($\rho = 0$)	0.02			0.02		
Value of log pseudolikelihood	-1580.64			-1578.15		
No. of observations	2422			2422		

* , ** , *** Significant at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 8**Bivariate probit analysis of bond issuers' lawsuit incidences and bank entry decision**

We specify the two equations in the bivariate probit model as follows (see Heckman [1978] and Greene [1993]):

$$y_1^* = \beta_1' X_1 + \varepsilon_1, \quad y_1 = 1 \text{ if } y_1^* > 0, 0 \text{ otherwise,} \quad (1)$$

$$y_2^* = \beta_2' X_2 + \delta y_1^* + \varepsilon_2, \quad y_2 = 1 \text{ if } y_2^* > 0, 0 \text{ otherwise,} \quad (2)$$

$$E[\varepsilon_1] = E[\varepsilon_2] = 0, \quad (3)$$

$$Var[\varepsilon_1] = Var[\varepsilon_2] = 1, \quad (4)$$

$$Cov[\varepsilon_1, \varepsilon_2] = \rho, \quad (5)$$

where y_1^* is the underlying value of commercial bank entry at the client level, and y_1 is a dummy variable taking the value 1 if the bond issuance is underwritten by a commercial bank and 0 otherwise. The variable y_2^* is the underlying value of the lawsuit decision; y_2 is a dummy variable taking the value 1 if the bond issuer is sued for alleged financial reporting fraud and 0 otherwise. Variables vectors X_1 and X_2 are exogenous firm and issue characteristics, respectively. The error terms $\varepsilon_1, \varepsilon_2$ are bivariate normal. The sample consists of bonds issued by non-sued firms during 1996–2000 and bonds by sued firms within three years prior to the firms' being sued (firms subject to securities fraud class actions during 1996–2003). The first dependent variable equals 1 if the bond issuance is underwritten by a commercial bank and 0 otherwise. The second dependent variable equals 1 if a bond issuer is sued in a securities fraud class-action lawsuit, 0 otherwise. Models 1 and 2 differ in the commercial bank entry measures. High bank entry indicates the industries in which commercial bank share is larger than or equal to 30%. Test inference is based on robust standard errors of White (1980). The amounts of loan deals are aggregated for each bond issue if issuing date is between the loan origination and maturity dates. Loans from underwriters (underwriter loans) are prorated based on lender share or on loan syndicate size where lender share information is not available. Credit ratings are from Moody's using a 17-point numeric scale where Aaa equals 1, Aa1 equals 2, and so forth. Prior one-year stock return is issuing firm's buy-and-hold stock return in excess of CRSP equally weighted index during the year prior to current bond issuance. Industry dummies based on one-digit SIC codes (2, 3, 4, 5, 7, and 8), yearly dummies, and intercept are included, but the results are not reported.

Table 8 (continued)

	Model 1			Model 2		
	Est.	z-test		Est.	z-test	
Dependent variable: Commercial bank underwritten bond = 1						
Ln(1 + underwriter loans)	0.07	10.78	***	0.07	10.76	***
Ln(1 + total amount of bond issues in an industry)	0.10	3.11	***	0.10	3.01	***
Ln(1 + no. of past bond issues)	-0.03	-0.73		-0.02	-0.71	
Ln(1 + issue size)	-0.06	-2.45	***	-0.06	-2.46	***
Ln(1 + market value of equity)	-0.12	-4.04	***	-0.12	-4.03	***
Total debt/total assets	0.01	2.91	***	0.01	2.95	***
Cash/total assets	-0.01	-1.89	*	-0.01	-1.87	*
Capital expenditure/total assets	0.00	-0.22		0.00	-0.42	
New issue (indep. var.)	0.19	1.63	*	0.19	1.63	*
Credit ratings	-0.03	-2.06	**	-0.03	-2.04	**
Shelf-registration (indep. var.)	0.34	2.68	***	0.33	2.64	***
Purpose of issue is to repay bank debt (indep. var.)	-0.19	-1.89	*	-0.19	-1.88	*
Issue maturity (years)	-0.01	-3.66	***	-0.01	-3.65	***
Dependent variable: Sued bond issuer = 1						
Commercial bank underwriting share/100	1.28	5.37	***			
High-bank-entry industry (indep. var.)				0.33	4.08	***
Underwriter reputation	-2.39	-3.63	***	-2.34	-3.55	***
Ln(1 + prior underwriter relationships)	0.27	2.1	**	0.28	2.17	**
Prior one-year stock return	-0.17	-2.04	**	-0.18	-2.04	**
Ln(1 + no. of past bond issues)	-0.01	-0.09		-0.01	-0.21	
Ln(1 + no. of past equity issues)	0.35	4.1	***	0.37	4.26	***
Ln(1 + issue size)	0.13	4.48	***	0.13	4.57	***
Ln(1 + market value of equity)	0.18	4.59	***	0.18	4.56	***
Total debt/total assets * 100	0.02	6.59	***	0.02	6.52	***
Cash/total assets * 100	0.03	4.73	***	0.03	4.62	***
New issue (indep. var.)	0.66	4.64	***	0.62	4.33	***
Credit ratings	-0.01	-0.33		0.00	-0.19	
ρ : correlation between ε_1 and ε_2	-0.16			-0.11		
Wald test of Chi-square ($\rho = 0$)	9.29			5.08		
p-value of Wald test of Chi-square ($\rho = 0$)	0.002			0.02		
Value of log pseudolikelihood	-2198.49			-2204.21		
No. of observations	2394			2394		

*, **, *** Significant at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.