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*Financial Infrastructure, Underwriter  
Reputations, and Securities Fraud*

by  
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# **Financial Infrastructure, Underwriter Reputations, and Securities Fraud**

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# **Financial Infrastructure, Underwriter Reputations, and Securities Fraud**

## **Abstract**

Prior studies on underwriter reputation focus on individual underwriters. However, it cannot explain the increasing trend of underwriters working in groups and the unusually high number of securities fraud lawsuits during the Internet bubble period. This paper shows empirically how the group's reputation affects individual underwriters' incentives to certify issues that do not merit certification and to assist certain clients to obtain public debt financing. Consistent with this collective reputation hypothesis, well-connected clients and co-led syndicate clients have a higher incidence of securities fraud litigation. These clients also receive higher bond prices, which could result from exploitation on investor beliefs by underwriters. Results also suggest that investors believe in more effective certification when more underwriters' reputations are at stake.

## 1. Introduction

On December 20, 2002, securities regulators announced a global settlement with 10 leading investment banks regarding conflicts of interest in producing misleading research to boost investment banking business.<sup>1</sup> Although the \$1.4 billion settlement may be a small price for the securities industry to pay, most market observers believe that the settlement could be the beginning of the most fundamental reform of Wall Street since the Great Depression. This was the time when the Glass-Steagall Act of 1933 was enacted in response to the public's belief that commercial banks were using their securities underwriting operations to pass troubled lending clients onto the capital markets. History may be repeating itself, but with a slightly different twist. The 10 leading securities houses are now split equally between investment banks and commercial banks.<sup>2</sup>

The choice to produce biased research reports to lure investment banking business is not an isolated incidence. Both Lin and McNichols (1998) and Michaely and Womack (1999) documented such questionable practices. Four years after their research was published, regulators were just getting around to forcing a disconnection between investment banking and securities research. Perhaps, without the shock of the market crash, it would have been difficult for security regulators to convince the public that any practice commonly observed on Wall Street was a serious problem.

Besides the above-mentioned controversial investment banking practices, a less noticeable trend that has evolved gradually in securities underwriting is that the size of

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<sup>1</sup> Headline news from Cable News Network, "Press Conference Announces Settlement Between Investment Banks & Government Regulators," December 20, 2002. See also the insightful comments on this issue by Hayes III (2003), "It's not just the financial loss, it's the loss of face," on page C3 of the Boston Globe on 3/2/2003.

<sup>2</sup> In 1987, the Federal Reserve permitted commercial banks to underwrite and deal in securities with some restrictions. See Section 2.1 for a detailed discussion on this regulation change.

underwriting syndicates and the number of issuing firms' underwriter relationships have increased. In the early 1990s, more than one underwriter rarely led a syndicate. However, in 2000, co-led syndicates underwrote 36.38% of newly issued industrial corporate bonds. If increased underwriter association means better information production and certification for clients because more underwriters' reputations are at stake, then one should observe higher bond prices related to co-led syndicates and to clients with many underwriter relationships. Those clients should have better quality ex-post to justify the higher bond prices. The positive relationship between bond price and client quality also suggests that underwriters price the bonds fairly between issuing firms and investors. This is the balanced-interest hypothesis.

Selecting quality clients and certifying the issues with its reputation are also the more traditional paradigm for underwriter reputation (see, for example, Chemmanur and Fulghieri (1994)). However, when underwriters work in a group, the impact of a group's reputation on individual underwriters' incentives is much more complicated than when underwriters are exclusively responsible for their acts. Tirole (1996) formally analyzes such an effect in a theoretical framework. Although Tirole's model is generic and not specific to the securities industry, the essential features of his model are pertinent for describing the incentives and the behavior of underwriters. He proposes a model of collective (group) reputation to explain the persistence of corruption based on the premise that individuals' track records can be observed only with noise. The current incentives of individuals are affected not only by their own track records but also by the collective reputation of the group they represent. The imperfect observation of individuals' reputations and the impact of group reputation on individuals provide individuals the incentives to choose a corrupt strategy and to game the system.

I extend the spirit of Tirole's theoretical model to test whether the bond underwriting activities observed in the late 1990s are consistent with the collective reputation hypothesis. This study examines whether underwriters collusively cooperate among themselves (forming co-led syndicates) and with well-connected bond issuing clients (those with an unusually high number of underwriter relationships) to obtain excessive financing in the public debt market. Since well-connected clients tend to be larger and very resourceful (including having strong political allies), the potential payoffs from assisting those clients are much larger and the chance of being caught or being punished can be smaller. Furthermore, all underwriters in the group will share in the reputation loss if the clients subsequently underperform. Therefore, incentives for underwriters to misrepresent clients' information should be greater for these clients. Following Tirole's model, individual underwriters in the group have incentives to underwrite for low quality clients. However, if investors are unaware of the group reputation effect and believe in more effective certification because more underwriters' reputations are at stake, then the bond prices they pay will be higher. Besides, the overly optimistic capital markets during the Internet bubble period provide an easier environment to implement such a scheme because investors may be overconfident (see, for example, Gervais and Odean (2001)).

In light of so many financial scandals in recent years, this paper uses the incidence of securities fraud lawsuits brought against issuing clients to proxy for the client's integrity (honesty). Thus, the client quality of interest is not merely underperformance but potential wrongdoings. According to the collective reputation hypothesis, well-connected clients and co-led syndicate clients are associated with a higher incidence of being sued and the ex-ante bond prices they receive will be higher.

Besides the group and individual underwriter reputation variables, other financial infrastructure variables examined in this study include universal banking (combined lending and underwriting activities) and separate banking.<sup>3</sup> One view on combined lending and underwriting is that it can reduce information production costs and lead to better certification capacity of a universal banking system.<sup>4</sup> Therefore, the issuing client's quality using universal banking should be higher ex-post, and the bond prices received should also be higher. However, another view argues that commercial banks with underwriting capacity also have incentives to misrepresent clients' information to recoup their potential loan loss and dump the troubled clients onto the capital markets. In this case, the universal banking clients' quality should be lower and the bond prices received should also be lower.

The findings indicate that underwriters are concerned with their individual reputations and are more selective in certifying clients when they sole-lead the syndicates because they are fully responsible for the ex-post performance of issuing clients. Individual underwriters' higher reputation is associated with a lower incidence of client litigation.

However, clients with many underwriter relationships (six or more) and clients using a co-led syndicate structure — in particular, hybrid syndicates consisting of both commercial banks and investment banks — have a higher incidence of litigation.<sup>5</sup> These clients also receive higher bond prices. The evidence suggests that investors believe that certification is more effective when a greater number of underwriters' reputations are at stake. Underwriters exploit investors' beliefs and take advantage of the apparent certification by pricing bonds too high and

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<sup>3</sup> Financial infrastructure in this paper refers to the financial systems or underwriting practices employed to allocate capital, such as, universal banking or syndicate formation.

<sup>4</sup> The impact of the financial system on the economy has been documented in many empirical studies. However, findings are mixed. For example, Beck and Levine (2002) show that the financial system does not matter in boosting industry growth. Gorton and Schmid (2000) demonstrate that universal banking matters for German firms.

<sup>5</sup> These results are not driven by size or deep pocket effect because they are robust in the subsample analysis that

obtaining excessive financing for certain issuing clients. Furthermore, underwriters have a greater tendency to do so when they work in groups. The findings strongly support the collective reputation hypothesis. The results also show that, even with more sophisticated bond investors, underwriters, in some circumstances, do not balance the interests between investors and issuing firms and act in favor of issuing clients.

Although when both commercial and investment banks co-lead a syndicate the probability of litigation is significantly higher, the incidence of such lawsuits is significantly lower when investment banks are lead underwriters but commercial banks (CB) participate as junior co-managers in the syndicates.<sup>6</sup> The distinction between IB-CB-co-led hybrid and IB-led-CB-co-managed hybrid syndicates is by no means subtle. A lead investment bank in the CB-co-managed hybrid syndicate suffers a lot more reputation loss in the event of a lawsuit, that is, individual reputation has more sway than group reputation. Consequently, a lead investment bank is more cautious in providing underwriting service; thus, the ex-post client quality is higher. This finding provides additional evidence to show that group reputation is the underlying force that explains the underwriting practices observed and the unusually high number of financial scandals uncovered in recent years.

Findings also indicate that universal banking per se does not select better or assist worse clients. Instead, when both commercial banks and investment banks cooperate at equal rank as lead managers in a syndicate, there is a higher incidence of clients being sued. Besides, the evidence shows that the reputation of an individual underwriter may not carry over directly to an underwriter working in a group. Conversely, the reputation of an underwriting group may not

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includes only large issuers and large firms.

<sup>6</sup> The terms lead manager and lead underwriter are equivalent in this paper and used interchangeably. They have the highest rank order followed by co-managers in a securities underwriting syndicate. Therefore, the rank of a co-lead manager and that of a co-manager is different, and so are responsibilities and reputation effect.

map back onto each of its constituent members. This paper is the first to consider the group reputations of underwriters and to link such an economic force to the observed underwriting practices.

The rest of the paper is organized as follows. Section 2 discusses the hypotheses and the related regulations. Section 3 explains the sample selection, data construction, and descriptive statistics. Section 4 analyzes the incidence of litigation and its commonality with bond prices. Section 5 concludes.

## **2. Regulatory Issues and Hypotheses**

The decade of the 1990s was marked by many significant regulatory remedies in the financial industry. This section discusses two important changes related to this study: the Gramm-Leach-Bliley Act and the Private Securities Litigation Reform Act. It may be a coincidence that these changes coincide with many questionable corporate events and business practices. What has happened in the business community does raise many research questions. For example, how has the practice of investment banking evolved into such a scandalous drama? Why didn't securities regulators stop the erosion earlier? Which governance mechanisms do work in financial markets?<sup>7</sup> How much has the general public suffered, and will this suffering continue?<sup>8</sup> How long will it take for trust in the markets to be rebuilt? These are serious and important questions that need to be addressed, perhaps, not by one paper, but many.<sup>9</sup> With these

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<sup>7</sup> For discussions of the failure of various control mechanisms, see Stiglitz (1985). On the effectiveness of governance mechanisms in the financial markets, Song and Szewczyk (2003) show that there is little evidence of the efficacy of coordinated institutional investor activism in improving poorly performing firms.

<sup>8</sup> On the economic impact of capital supply shocks, see, for example, Calomiris and Mason (2002). They find a strong link between loan-supply shocks and bank distress, reduced credit, and economic contraction during the Great Depression.

<sup>9</sup> To answer these complicated questions, we must analyze many facets of corporate finance, the practices of financial markets, the pricing of assets, and the behaviors of investors in a more consolidated fashion. For example, Jensen (2001) points out the problem of using a capital budgeting target as a performance measure in compensation systems. The mechanism provides great incentives for managers to distort information or to game the system.

problems in mind, this paper attempts to answer a basic question: is financial infrastructure one of the factors that contributed to the financial turmoil at the turn of the 21<sup>st</sup> century in the U.S.? Moreover, what is the underlying economic force that drives the behavior of underwriters and the observed underwriting practices during the Internet bubble period?

### 2.1. *Universal Banking and the Gramm-Leach-Bliley Act*

The purpose of the Gramm-Leach-Bliley Act (GLBA), also known as the Financial Services Modernization Act, was to facilitate the integration of the financial industry in response to new developments in technology, global competition, and the changing demand for financial services.<sup>10</sup> The consolidation of various financial services into universal banking permits intermediaries to reuse information and to increase the flexibility of providing financial services.

Pertaining to this study, the GLBA repeals two sections (20 and 32) of the Glass-Steagall Act (GSA) that prohibited banks from affiliating with securities companies. Although the GLBA was signed into law on November 12, 1999, the repeal process started in 1987 when the Federal Reserve granted permission to three commercial banks to underwrite and deal in municipal revenue bonds, mortgage-backed securities, commercial paper, and consumer-receivables-related securities (the so-called tier-one securities).<sup>11</sup> The revenues from these activities were set at no more than 5% of the subsidiary's total gross revenues on an eight-quarter moving average basis. The securities affiliates of these commercial banks are referred to as Section 20 subsidiaries later

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Empirical studies also find earnings management activities in some corporate events and equity issuances (DuCharme, Malatesta, and Sefcik (2002); Teoh, Welch, and Wong (1998)). Teoh and Wong (2002) further show that analysts inappropriately account for earnings management in their forecasts. However, these studies also raise questions as to why investors could be systematically duped repeatedly.

<sup>10</sup> Information on the Gramm-Leach-Bliley Act of 1999 can be downloaded from the following web site: <http://www.senate.gov/~banking/conf/> (January 24, 2003).

<sup>11</sup> For the initial order, see Citicorp, J.P Morgan & Co Incorporated, and Bankers Trust New York Corporation, *Federal Reserve Bulletin* 73 (1987), pages 473-508. For revenue limitation test and subsequent changes, see *Federal Register* 61 (1996), pages 68750-68756.

on because Section 20 of GSA prohibits Federal Reserve member banks from being affiliated with any organization that is “engaged principally” in underwriting or dealing in securities.

In 1989, the Federal Reserve expanded the underwriting powers to include tier-two securities, i.e., corporate debt and equity (with one-year delay), and raised the revenue limitation to 10%.<sup>12</sup> At the end of 1996, the revenue limitation was raised to 25%, which made mergers between big commercial banks and investment banks feasible. Since 1996, there have been many mergers among large underwriters.<sup>13</sup> The GLBA also creates a financial holding company under Section 4 of the Bank Holding Company Act to organize the newly consolidated financial entities. As of January 10, 2003, there were 638 financial holding companies and 73 Section 4(k)(4)(E) securities subsidiaries listed on the Federal Reserve’s web page.

The economic issue related to this regulatory remedy is that combined lending and underwriting (universal banking) may provide additional incentives and tools for commercial banks to misrepresent clients’ quality. A bank that uncovers unfavorable information about a client during loan monitoring or a loan-granting examination could dump the low quality “lemon” client onto the capital markets by exercising its underwriting capacity. The potential for conflicts of interest was one of the main reasons behind passage of the GSA. However, recent financial market developments and competition call for a reexamination of the issue and a reconsideration of the potential benefits of information cost efficiency and financing flexibility arising from integrating different financial services.

Empirical studies, such as Ang and Richardson (1994) and Puri (1994), use securities underwriting activities prior to the GSA of 1933 to examine bond default rates of different

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<sup>12</sup> See J.P Morgan & Co. Inc., The Chase Manhattan Corp., Bankers Trust New York Corp., Citicorp, and Security Pacific Corp., *Federal Reserve Bulletin* 75 (1989): 192-217.

underwritings and conclude that issues underwritten by commercial banks perform better than issues underwritten by investment banks. Using similar data, Kroszner and Rajan (1994) find no evidence of conflicts of interest, but the public seemed to rationally discount the ability of bank certification that restricted banks to underwrite high-quality securities. In related work, Kroszner and Rajan (1997) show that banks could enhance their credibility by distancing their underwriting business and lending practice to address concerns about conflicts of interest. Kanatas and Qi (1998) propose a theoretical model that demonstrates similar conclusions. In related work, Kanatas and Qi (2003) further analyze the underwriting efforts of universal banking and specialized banking. They contend that market power reduces universal banks' incentives to incur costly underwriting efforts and universal banking tends to be less innovative than specialized banking.

Using data from the early 1990s, Gande, Puri, Saunders, and Walter (1997) find that bond-issuing firms that borrow from commercial banks and use their lenders' underwriting services receive higher prices than those that use investment bank underwriting or commercial bank underwriting without lending relationships. However, using data from 1995 to 1998, Roten and Mullineaux (2002) do not find the same bank certification effect as prior studies do. Song (2003a) employs an empirical model, known as switching regressions with endogenous switching, to reexamine the issue. The model removes the implicit constraint, imposed by prior studies, that restricts outcomes to one of three categories, i.e., commercial banks are better than, equal to, or worse than investment banks. Song demonstrates that there is a fourth possibility: given the pros and cons of bank underwriting, there is no universally dominant underwriting

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<sup>13</sup> See Song and Goldberg (2002) for a list of these mergers.

technology. Commercial banks serve certain clients better than investment banks, and vice versa. Thus, both underwriters coexist in the economy.

The aforementioned studies that examine bank underwriting in the 1990s focus on the pricing and quality of underwriting services from the issuer's point of view.<sup>14</sup> However, equally important is the interest of investors. In this study, I examine if universal banking is related to the incidence of lawsuits brought against bond-issuing clients. Based on the information certification argument, universal banking is negatively related to the probability of lawsuits. However, the potential for conflicts of interest posits a positive relationship. If underwriters balance the interests of both issuing firms and investors, then the ex-ante net yields — the interest costs paid by issuers net of Treasury Securities of similar maturity — should reflect the ex-post incidence of clients' lawsuits, the proxy for issuing firms' integrity. Table 1 shows the list of universal banking variables and their definitions. Also, see Section 3.1 for further discussions of variables.

## 2.2. *Client Quality and Private Securities Litigation Reform Act*

Uncertainty about quality is inherent in the financial market that provides the opportunity for dishonest dealings.<sup>15</sup> When information is opaque and state of mind is difficult to verify, it is even more difficult for outsiders to judge quality. The client quality of interest in this paper is not merely the performance of a firm but the possibility of intentional fraudulent misconduct. A firm that takes reasonable business risks can fail because of bad luck. However, it provides a safe haven for those who cheat because outsiders cannot easily tell which is the true

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<sup>14</sup> See also Hebb and Fraser (2002), Chaplinsky and Erwin (2001), and Roten and Mullineaux (2000).

<sup>15</sup> See Akerlof (1970), for the cost of dishonesty in the business world.

reason for the failure. The role of intermediaries is to distinguish between the honest and the dishonest and to certify the good type.

Information acquisition regarding honesty requires ongoing relationships between clients and intermediaries because honesty is not an easily observable characteristic. This paper uses securities fraud lawsuits filed against issuing firms as the proxy for clients' honesty. Therefore, the performance of underwriters in identifying honest clients is measured by the incidence of issuing clients' lawsuits. It is also an indication of underwriters' honesty if underwriters are capable of distinguishing between the types of clients but choose to collude with some well-connected bad clients.<sup>16</sup>

Of course, there is another type of moral hazard: investors have incentives to file lawsuits against poorly performing firms even if there is no case. In light of this potentially abusive litigation, which could also destroy the economic welfare of society, Congress passed the Private Securities Litigation Reform Act (PSLRA) in 1995 to discourage non-meritorious securities fraud class actions. The PSLRA contains a set of provisions that present a substantial obstacle to weak claims. For example, it requires plaintiffs to state with particularity facts giving rise to "strong inference" that the defendant acted with the "required state of mind." Johnson, Nelson, and Pritchard (2002) study the effect of PSLRA and find that accounting and insider trading variables significantly explain the incidence of litigation post-PSLRA but not prior to its passage. They conclude that PSLRA discourages frivolous securities fraud lawsuits.

### 2.3. *Collective Reputation Hypothesis*

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<sup>16</sup> In a theoretical framework, Allen (1990) shows that an information reliability problem provides an opportunity for intermediation. However, intermediaries also have incentives to cheat.

Many securities lawsuits follow surprisingly negative financial restatements and/or huge declines of issuing firms' stock prices. Serious financial underperformance coupled with the disclosure of wrongdoings significantly increases firms' default risk. Following the pricing of default risk in corporate debt contended by Merton (1974), if underwriters have done their homework and incorporated the potential of lawsuits into bond prices, then the bond net yields at issuance should be positively related to the incidence of litigation. This is the balanced-interest hypothesis.

On the other hand, if underwriters choose to collude in a group, then they may misrepresent client's information and do not incorporate the litigation risk into bond price. Furthermore, if they exploit investors' trust and take advantage of the apparent certification because more underwriters' reputations are at stake, underwriters may overprice the bond. These arguments are based on the collective reputation hypothesis of Tirole (1996). Although Tirole's collective reputation model is not designed specifically for investment banking practices, the essential features of the model are pertinent for predicting the behavior of underwriters. As in Tirole's framework, individual underwriters' reputation cannot be perfectly observed. Therefore, the "norm" of the investment banking industry or the group reputation of underwriters shapes individual underwriters' incentive because the payoff to an individual also depends on the group's reputation. All underwriters also share in the reputation loss if an issuing client subsequently underperforms.

I use the ongoing client-underwriter relationships and underwriter-underwriter connections as proxies for the group underwriter reputations to test the potential for collusion among these players to engage in excessive public debt financing. This paper attempts to explain

the high occurrence of financial scandals and the excessive securities issuances that did not merit certification during the Internet bubble period.

The proxy for client connection is the number of different underwriters used in both bond and/or equity issuances within the five-year period prior to the current bond issuance. If a client employs six or more underwriters, then the client is classified as well connected. The median number of underwriters used by bond issuers is three. The number six seems unusually high, which also indicates that more underwriters will share in the reputation impact of clients' ex-post performance. The effect of group reputation provides greater incentives to choose a corrupt strategy, i.e., misrepresenting clients' information to obtain excess financing for these clients.

The second proxy for group reputation is the network between underwriters — the underwriting syndicate structure. Cooperative arrangements between underwriters could provide the benefits of risk sharing and temporary pooling distribution channels for large issues. If these are the only reasons for syndication, when the issue size is controlled for in the analysis, syndicate structure should have no relation to the incidence of clients' lawsuits and to the pricing of bonds.<sup>17</sup> However, Song (2003b) shows that, in the banks' early entry stage (1991-1996), syndicates led by investment banks with commercial banks as junior co-managers (CB-co-managed hybrid syndicates) have distinct clienteles compared with pure investment bank syndicates. Lead investment banks can enhance the certification capacity of underwriting syndicates by inviting commercial banks' participation, which, in turn, permits these hybrid syndicates to engage in more challenging market segments. The lower bond net yields definitely benefit hybrid clients; however, it is an empirical question as to whether such lower net yields are justified from the investors' viewpoint.

In this study, I examine the relationship between the incidence of issuing clients' lawsuits and syndicates co-led by both investment banks and commercial banks. Different from Song (2003b), in which the hybrid syndicates are led-managed by investment banks with commercial banks participating as junior co-managers, in this study, the hybrid syndicates are co-led by both investment banks and commercial banks. Obviously, lead managers share more responsibility than co-managers. The rank order is very symbolic in the security underwriting business. The commonly used Carter-Manaster ranking for underwriter reputation is estimated via the relative placement in IPO tombstones (Carter, Dark, and Singh (1998)). The reputation impact should be different for underwriters at different placements in the tombstone advertisement for securities offerings.

If IB-CB-co-led hybrid syndicates are formed to produce better information that leads to better certification, then both the bond net yields and the probability of lawsuits should be lower. However, if investors believe in stronger certification because more underwriters' reputations are at risk, but, in fact, rival underwriters exploit the trust of the public and collude for certain clients to tap capital markets, then the incidence of litigation will be higher. But the bond net yields at issuance may not reflect such higher risk. A higher ex-post incidence of litigation and lower bond net yields paid by hybrid clients are consistent with the collective reputation hypothesis.

#### 2.4. *Individual Underwriter Reputation*

Given so much bad press and many questionable investment banking practices, one may wonder if individual underwriter reputation has a role in explaining the ex-post quality of clients. Chemmanur and Fulghieri (1994) propose a theoretical model showing that more reputable

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<sup>17</sup> See Preece and Mullineaux (1996), for the role of lending syndicates, and Lerner (1994) for the economics of syndicating venture capital investments.

underwriters with better information technology should serve higher quality clients. Titman and Trueman (1986) derive a similar conclusion.<sup>18</sup> If concern about individual reputation still plays a positive role in underwriting, then a negative correlation between reputation and litigation will be observed. On the other hand, if more reputable underwriters are better equipped to take advantage of investors and they exploit this opportunity, then reputation and the incidence of litigation will be positively correlated. I use the yearly issue share as the proxy for individual underwriters' reputation because there is no Carter-Manaster ranking available for newly entered commercial banks in the securities industry.

### **3. Data and Variables**

The sample consists of a cohort of industrial corporate bonds issued during 1996-2000. Issue characteristics, syndicate structure, and underwriters' information are downloaded from the New Issues Database in SDC Platinum (Thomson Financial Securities Data). Firm characteristics measured at the end of the year prior to bond issuance are drawn from COMPUSTAT and market value of equity is from CRSP. Loan information as the proxy for lending relationships is collected from the Dealscan database of the Loan Pricing Corporation. The amounts of loan deals are aggregated for each bond issue if the issuing date is between loan origination date and loan maturity date. Loans from commercial bank underwriters (underwriter loans) are pro rata based on lender shares or loan syndicate sizes where the share information is not available. Bond-issuing clients sued in federal securities fraud class actions during 1996-2002 (post-PSLRA) are identified from the web site of the Stanford Securities Class Action

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<sup>18</sup> See also Diamond (1989) and Diamond (1991), for theoretical work on the role of reputation in the capital markets, and Cripps, Mailath, and Samuelson (2002), for additional work on reputations with imperfect monitoring.

Clearinghouse (<http://securities.stanford.edu>).<sup>19</sup> Therefore, the sample is within the same regime of securities litigation requirement.

Bonds underwritten by more than one lead underwriter are repeated based on the number of co-led underwriters and treated as different observations because the characteristics of underwriters associated with each bond are different. This data treatment gives all underwriters fair presentation in the data. Therefore, test inferences are based on robust standard errors of White (1980) while allowing observations to be correlated within issuing client. There are 3395 bonds and 4003 bond-underwriter observations. Both unique bonds and bond-underwriter data are analyzed in the same fashion. The main findings are essentially the same, so only the results of the bond-underwriter observations are reported.

### 3.1. *Financial Infrastructure Variables*

The sets of financial infrastructure variables are listed in Table 1. The first proxy for *group underwriter reputation* is a set of dummy variables that indicate the number of multiple underwriter relationships. In particular, the variable, *well-connected client*, equals 1 if the client used six or more different lead underwriters in prior bond and/or equity issuances within the five-year period prior to the current bond issuance; 0 otherwise. This variable measures the group reputation effect of underwriters that are pooled together by serving the same clients within the 5 years period. Therefore, it is a measure across time, which covers the on-going nature of relationships.

The second proxies for group underwriter reputation are syndicate structures, which include (1) hybrid co-led syndicate: commercial banks (CB) and investment banks (IB) co-lead

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<sup>19</sup> See Ferris and Pritchard (2001), for the main types of allegation, the recent development of securities fraud class actions, and the relation between firm characteristics and litigation.

the syndicate; (2) pure CB (IB) co-led syndicate: only commercial (investment) banks lead manage the syndicate; (3) IB-led-CB-co-managed syndicate: investment banks lead manage the syndicate with commercial banks participating as co-managers. CB-led-CB-co-managed syndicate is defined similarly. The co-led syndicate type is the proxy for the group underwriter reputation at a point in time when a group of underwriters cooperate to float the bond issue.

Individual underwriter reputation is the yearly issue share, i.e., the number of bonds underwritten by an underwriter divided by the total number of bonds issued in the market in the same year. When underwriters participate in the co-led syndicate, the number of issues is adjusted by using one divided by the number of lead underwriters in the syndicate. During the year of merger, the yearly issue share is adjusted for merger. For example, if a client used Morgan Stanley in 1997 but prior to its merger with Dean Witter on May 31, 1997, the underwriter yearly issue share is the Morgan Stanley issue share prior to merger plus that following the merger in 1997. If a client used Morgan Stanley after the merger, the yearly issue share also includes the share of Dean Witter prior to merger.

Variables related to *universal banking* and *clients' prior securities issuances* are also defined in Table 1. The mergers among major debt underwriters reported in Table 2 are classified mainly based on Song and Goldberg (2002). Major underwriters are those with at least 1% of market share in number of industrial bond issues during 1996-2000 based on the aggregate issue shares of post-merger entities. As Table 2 shows, major underwriters account for more than 96% of the observations, which indicates that debt underwriting is a highly concentrated market. On average, the percentage of bonds issued by sued clients is 23.44% for major underwriters, which is significantly higher than that for small underwriters (17.61%). However,

the issue number (142) of small underwriters is extremely small. Among the major underwriters, larger ones tend to have a lower percentage of bonds issued by sued clients than do smaller ones.

Table 2 also reports the 10 leading underwriters in the grand settlement (more than \$1.4 billion) announced on December 20, 2002. Besides the \$900 million in fines, \$450 million of the settlement will be used to purchase independent research. The remaining \$85 million will be employed for investor education. Only Bank of America is not on the list. However, it agreed to settle a class-action lawsuit filed against the merger with NationsBank in 1998. The amount of settlement, \$490 million, was approved in October 2002.<sup>20</sup>

### 3.2. *Univariate Comparisons of Sued Versus Non-sued Clients*

Table 3 reports the number and frequency of bond-underwriter observations that are issued by sued clients. Among the 4003 observations, 930 (23.23%) are associated with securities litigation. Table 3 also reports issue maturity. Issue maturity of sued bonds (9.9 years in mean) is significantly shorter than that of non-sued bonds (11.8 years in mean) for full sample. The issue maturity appears to decline over time, in particular, for the bonds issued by the sued clients.

Table 4 presents the number of issuing clients' underwriter relationships within the five-year period prior to the current bond issuance by syndicate type. The number of co-led syndicate underwriting bonds grew dramatically during the Internet bubble period, while that of sole led syndicate underwriting bonds declined. The number of underwriter relationships is larger for the sued clients than for non-sued clients. That for clients using sole-led syndicates is also larger compared with that for clients using co-led syndicates. These results suggest that multiple

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<sup>20</sup> "Approve \$490 million settlement in class-action suit over bank merger," The Associated Press State & Local Wire, October 2, 2002.

underwriter relationships and co-led syndicates are substitutes for bond-issuing clients. Those using sole-led syndicates tend to use different underwriters for different securities issuances. Those using co-led syndicates tend to keep fewer underwriter relationships.

Panel A, Table 5, shows that clients using hybrid syndicates have a significantly higher percentage of lawsuits than those using sole lead syndicates or co-lead syndicates, including only investment banks. Because client-underwriter relationships tend to be continuous in nature, Panel B, Table 5, further partitions the usage of universal banking into four groups by considering clients' past securities issuances. The clients switched in between investment banks and commercial banks have a significantly higher percentage of lawsuits than those using only one type of underwriter. Bond-issuing clients that cannot switch between underwriters tend to be smaller firms. Panel C also indicates that clients using hybrid merger underwriters have a higher incidence of lawsuits than clients using other types of underwriters.

Table 6 shows that clients that issued bonds and/or equity within the five-year period prior to the current bond issuance have a significantly higher tendency to be sued than those that do not issue securities regardless of syndicate structure. Clients using co-led syndicates also have a significantly higher incidence of being sued than those using sole-led syndicates. Panel C, Table 6 reports that well-connected clients have a significantly higher chance of being sued than those that use fewer than six underwriters regardless of syndicate types. Among the clients using sole-led syndicates with fewer than six underwriter relationships, 18.61% of them were sued. However, among the well-connected clients using co-led syndicates, 64.15% were sued. Panel C also demonstrates that well-connected clients and co-led syndicate structure measure two dimensions of group reputations that do not overlap much. If we combine both measures, the group reputation effects are additive as indicated by the extremely high incidence of lawsuits.

Table 7 compares the client and bond issue characteristics of sued and non-sued clients. Underwriters of sued clients have significantly lower issue shares (lower reputation). Conditional on clients having issued debt (equity) within the five-year period prior to the current bond issuance, sued clients raised a significantly larger amount of debt (equity) during the past five years than non-sued clients. Sued clients borrow significantly larger amounts of total loans in median, but significantly smaller amounts of underwriter loans, than non-sued clients.

Sued clients are larger, have higher leverage, and have higher cash holdings than non-sued clients. Sued firms have lower operating income and interest expense relative to operating income, but a higher Tobin's  $q$  than non-sued clients in median.

The bonds issued by sued clients carry a lower net yield with shorter maturity, but the issue sizes are larger than those of non-sued clients. The number of days between bond issuance and subsequent lawsuits is 840.88 days in mean, and 797 in median. There are 174 observations associated with bonds that were issued after the clients were sued. Excluding these observations does not affect the findings qualitatively; in some cases, the results are more significant. Thus, I keep these observations in the analysis.

## **4. The Determinants of Litigation and Bond Net Yields**

### *4.1. The Incidence of Securities Fraud Lawsuits*

Many control variables are used to check the robustness of main findings in the logit regressions of litigation incidence. They include the client and issue characteristics listed in Table 7 and a list of industry dummies based on one-digit SIC codes. Credit ratings dummies include Moody's ratings of Aa, A, and non-investment grade. Firm characteristics are leverage, interest expense, Tobin's  $q$ , total bank loans, and loans from the commercial banks that also

underwrite for the firms. However, the findings are very robust to various model specifications; therefore, I report the model with complete specification. In addition, the inclusion of additional issue characteristics does not change the findings. Thus, these variables are dropped from the analysis. They are if a bond is senior, new issue, callable, shelf-registration, and is issued for the purpose of repaying bank debt.

In Table 8, Model (1) uses all bond-underwriter observations. Model (2) uses unique bond issues. The names of first underwriters appearing in the co-led syndicates are used to proxy underwriters' characteristics. Including bond net yield in the logit regression does not change the results and the coefficient on bond net yield is also insignificant; therefore, these results are not reported. This paper includes extensive control for syndicate structures and universal banking by using many dummy variables. The base group in the logit regressions regarding these two dimensions is bonds underwritten by investment bank sole-led syndicates without commercial banks participating as co-managers. Besides, the clients issued these bonds did not have multiple prior underwriter relationships.

Consistent with the collective reputation hypothesis, well-connected clients (those who used six or more underwriters) have a significantly higher chance of being sued. Clients with multiple underwriter relationships but fewer than six underwriters tend to be sued more often than those that do not have multiple relationships; however, the results are not significant in Model (1). Since using only the first underwriter name to classify the underwriter type produces unfair presentation of underwriters, I focus discussions on the bond-underwriter sample, i.e., Model (1). Clients of bonds underwritten by hybrid syndicates also have a higher incidence of lawsuits. These results suggest that the influence of group reputation increases underwriters'

incentives to misrepresent clients' information and underwrite for lower quality firms because all underwriters involved in the deals will share in the reputation loss.

On the other hand, individual underwriter reputation is negatively related to the incidence of lawsuits. The result indicates that when underwriters sole-led the syndicates, they are more selective in providing underwriting services. Their reputations are tied directly to clients' ex-post performance with no other underwriters to share in the reputation loss. The finding shows that individual underwriters' reputation still plays a role in screening the quality of clients.

The different incentives for group versus individual reputations are further demonstrated by the IB-led-CB-co-managed syndicate. On the surface, this is also a form of hybrid syndicate; however, the incidence of lawsuits is significantly lower. Compared to an IB-CB-co-led hybrid syndicate, commercial banks play a less important role as junior co-managers in the IB-led-CB-co-managed syndicates. The distinction between these two types of syndicates is by no means subtle. In the event of litigation, lead investment banks will suffer more reputation loss than co-manager commercial banks in co-managed syndicates. Therefore, in this case, individual reputation has more sway than group reputation. Consequently, lead investment banks are more diligent in producing underwriting services and the ex-post client quality appears to be higher.

Table 8 shows that the probability of lawsuits is insignificantly associated with the choice of financial system. Most of the universal banking variables are insignificant, including lending relationships between clients and commercial bank underwriters. Merger types also have little impact on the incidence of lawsuits. However, clients using only investment banks or only commercial banks have a higher probability of being sued. These results indicate that universal banking per se is not related to the incidence of clients' lawsuits, and combined lending and underwriting does not select higher quality clients or assist lower quality clients.

Larger firms tend to issue larger amounts, use co-led syndicates, have more underwriter relationships, and have a higher probability of being sued because of deep pocket effects. Therefore, firm size and issue size are controlled for in analyzing such an effect. The results show that larger firms have a significantly higher incidence of lawsuits, as do firms with credit ratings of Aaa and higher cash holdings. To further examine the size and deep pocket effects, Appendix A reports the results of subsample analysis that contains only large issuers and large firms, namely, those in the top 60 percentile in issue size or market value of equity, respectively. The findings for the well-connected clients and hybrid syndicate clients are robust.

#### 4.2. *Bond Net Yield Regressions*

The results in Table 9 show that the coefficients on some infrastructure variables are opposite to the prediction of the balanced-interest hypothesis. In general, issuing firms with multiple underwriter relationships pay significantly lower bond net yields, in particular, for the well-connected clients. In Model (1), both hybrid and CB-co-led syndicate clients also pay significantly lower bond net yields. The results imply that investors believe in stronger certification when more underwriters' reputations are at stake. Thus, investors are willing to pay higher bond prices. However, underwriters exploit the trust of investors and engage in excess financing for certain clients.

Firms that issue bonds with larger amounts and longer maturities pay higher net yields, as do firms with high cash holdings and high interest expense relative to operating income. None of the universal banking variables significantly explains bond net yields in the late 1990s.

The existence of two types of underwriters may complicate the analysis in that the variables of interest may posit different relations to bond pricing for different underwriters. Therefore, I also use the switching regressions with endogenous switching framework described

in Maddala (1983) and Lee (1978) to examine the bond net yield regressions. The findings on the variables of interest are robust for the bond-underwriter observations. Therefore, the results are not reported. However, the analysis for unique bonds shows that hybrid clients pay significantly lower net yield if the first underwriter is a commercial bank. But if the first underwriter is an investment bank, the net yields paid by hybrid clients are not significantly different from zero. In any case, one should remember that both types of underwriters are involved in the hybrid deals. Although listed as the non-first underwriters, investment banks are still the co-lead managers. Therefore, I go with the results from bond-underwriter observations.<sup>21</sup>

In summary, the results of both lawsuit incidence and net yield regressions are consistent with the collective reputation hypothesis. The findings on group reputation variables strongly support such a conclusion. The results also suggest that, in some circumstances, bond prices set by underwriters are too high even in a market with more sophisticated bond investors during the Internet bubble period.

## **5. Conclusions**

The financial scandals discovered at the beginning of the 21<sup>st</sup> century raised concerns about the practices of the securities industry. The view that an underwriter cares about its reputation, which should reduce the incentive to misrepresent information, fails to explain the high incidence of securities fraud during the Internet bubble period. This paper considers the reputation of underwriters in groups and shows empirically how collective (group) reputation affects individual underwriters' incentives to certify issues that do not merit certification.

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<sup>21</sup> For readers interested in the differences in underwriting performance between commercial banks and investment banks listed as the first underwriters in the 1990s, see Song (2003a).

The evidence strongly supports the collective reputation hypothesis. When underwriters work in groups, they have a higher tendency to underwrite for lower quality clients. Both well-connected clients and hybrid co-led syndicate clients have a higher incidence of litigation. These clients also receive higher bond prices. These results suggest that investors believe that certification is more effective when a greater number of underwriters' reputations are at stake. Underwriters take advantage of such beliefs and obtain excessive debt financing for some clients that do not warrant certification. However, when lead underwriters incur more reputation loss in the sole-led syndicates, if clients subsequently underperform, underwriters appear to be more cautious in selecting clients. Higher individual underwriter reputation is associated with a lower incidence of client litigation.

Using different types of hybrid syndicates, this study provides additional evidence that supports the claim that group and individual reputations provide different incentives to underwriters. The ex-post underwriting performance of IB-CB-co-led hybrid syndicates and that of IB-led-CB-co-managed syndicates are different. The latter, where commercial banks participate as junior co-managers rather than senior lead managers, is associated with a significantly lower probability of litigation. Apparently, in the IB-CB-co-led syndicates, group reputations have more influence on lead investment banks' incentives to misrepresent clients' information. Consequently, the incidence of clients engaged in securities fraud is significantly higher for IB-CB-co-led syndicates.

Besides analyzing group versus individual underwriter reputations, this study also examines the relationship between universal banking (combined lending and underwriting of commercial banks) and the client's quality ex-post. The evidence shows that universal banking per se does not select better clients or assist worse clients. When both types of rival underwriters

collectively engage in securities underwriting, there is a significantly higher incidence of litigation.

Underwriters play an essential role in allocating precious capital in the financial markets. Their behavior and integrity have a profound impact on the prosperity of the economy. The systematic relations between the incidence of financial scandals and the practices of investment banking show that, on some occasions, underwriters do take advantage of investors' trust. If they do so, they tend to do that in groups. Fortunately, the evidence in this paper also shows that individual reputation still plays an important role in the financial system, which implies that it is possible to revitalize sluggish capital markets. The question is how long will it take.

This paper also highlights the importance of incorporating pricing information that reflects the underlying incentives of agents and their behavior arising from the imperfect financial system. Besides, understanding the fundamental economic power that shapes the behavior of underwriters provides important policy implications and suggests a sensible anti-corruption campaign that is required to restore the trust of investors. As this paper has shown, preventing underwriters from colluding in a group to adopt corrupt practices and being able to pinpoint individuals and hold them accountable for their acts are essential to maintain the stability and prosperity of the securities industry.

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**Table 1****List of financial infrastructure variables: Underwriter reputations, universal banking, and clients' prior securities issuances**

Variable name	Variable definition
<b><i>Group underwriter reputation</i></b>	
Two underwriter relationships	Equals 1 if a client used 2 different lead underwriters in prior bond and/or equity issuances within the 5-year period prior to the current bond issuance; 0 otherwise. Other underwriter relationships dummies are defined similarly.
Well-connected client	Equals 1 if a client used 6 or more lead underwriters in prior bond and/or equity issuances within the 5-year period prior to the current bond issuance; 0 otherwise.
Hybrid co-led syndicate	Equals 1 if current bond issuance is co-led by commercial banks and investment banks; 0 otherwise.
Pure CB co-led syndicate	Equals 1 if current bond issuance is co-led by only commercial banks; 0 otherwise.
Pure IB co-led syndicate	Equals 1 if current bond issuance is co-led by only investment banks; 0 otherwise.
IB-led-CB-co-managed	Equals 1 if current bond issuance is led by investment banks with commercial banks participating as junior co-managers; 0 otherwise.
CB-led-CB-co-managed	Equals 1 if current bond issuance is led by commercial banks with commercial banks participating as junior co-managers; 0 otherwise.
<b><i>Individual underwriter reputation</i></b>	
Underwriter reputation	Individual underwriter reputation is the yearly issue share, i.e., the total number of bond issues underwritten by an underwriter divided by the total number of bond issues in the same year. When underwriters participate in the co-led syndicate, the number of issues is adjusted by using one divided by the number of lead underwriters in the syndicate. During the year of merger, the yearly issue share is adjusted for merger. For example, a client use Morgan Stanley in 1997 but prior to its merger with Dean Witter on May 31, 1997, the underwriter yearly issue share is the Morgan Stanley issue share prior to merger plus that following merger in 1997. If a client uses Morgan Stanley after merger, the yearly issue share also includes the share of Dean Witter prior to the merger.

**Table 1 (Continued)**

Variable name	Variable definition
<b><i>Universal banking</i></b>	
Commercial bank lead	Equals 1 if current bond issue is lead-underwritten by commercial banks; 0 otherwise. Commercial bank underwriters are those with Section 20 subsidiaries (organized as financial holding companies), which are the legal organizational forms under which the Federal Reserve Board permits commercial banks to underwrite corporate securities prior to (following) the enactment of Gramm-Leach-Bliley Act.
Use only investment banks	Equals 1 if a bond issuer did not use a commercial bank as an underwriter within the 5-year period prior to the current bond issuance that is lead-underwritten by an investment bank and does not use a hybrid syndicate; 0 otherwise.
Use only commercial banks	Equals 1 if a bond issuer did not use an investment bank as an underwriter within the 5-year period prior to the current bond issuance that is lead-underwritten by an commercial bank and does not use a hybrid syndicate; 0 otherwise.
Underwriter loans	Existing loans borrowed from commercial bank underwriters in \$MM.
<b><i>Client's prior securities issuances and underwriter usage</i></b>	
Number of past bond (equity) issues	The total number of bonds (equities) issued within the 5-year period prior to current bond issuance.
Use same debt (equity) underwriter	Equals 1 if a client used the current lead underwriter in prior bond (equity) issuance within the 5-year period; 0 otherwise.

**Table 2**  
**Frequency distribution of sample by major underwriter**

This table reports, by underwriter, the number and percentage of bond-underwriter observations issued during 1996-2000 by sued clients (those that were subject to securities fraud class actions during 1996-2002). The sample consists of 4003 industrial bond-underwriter observations. Bonds underwritten by more than one lead underwriter are repeated based on the number of co-lead underwriters and treated as different observations because the characteristics of underwriters associated with each bond are different. Major underwriters are those with at least 1% of market shares in number of industrial bond issues during 1996-2000 based on the aggregate issue shares of post-merger entities. Hybrid merger is a merger between commercial banks and investment banks; the merged entity is classified as a commercial bank. Among them, 10 underwriters agreed to settle with securities regulators on December 20, 2002, to pay more than \$1.4 billion in fines and finance independent research. The fines figures are drawn from “Wall Street’s \$1.5B reform on precipice of settlement,” *USA Today*, December 20, 2002. The figures for “Finance independent research” are collected from “Alpha Equity Research ranked #1 in stock-picking performance; offers comments on Friday’s \$1.4 billion settlement against Wall Street Research Firms,” *Financial Times Information*, December 23, 2002.

Major underwriters	Merger type	Number of observations	Sued (Number)	Sued (%)	Fines announced on Dec. 20, 2002 (\$Mil)	Finance independent research (\$Mil)
Bank of America	Hybrid	127	30	23.62	-	-
Bear Stearns	Non-merger	97	34	35.05	50	25
Credit Suisse First Boston	Pure investment banks	316	76	24.05	150	50
Deutsche Bank	Hybrid	82	30	36.59	50	25
Goldman Sachs	Non-merger	578	123	21.28	50	50
J. P. Morgan <sup>a</sup>	Pure commercial banks	557	112	20.11	50	25
Lehman Brothers	Non-merger	197	50	25.38	50	25
Merrill Lynch	Non-merger	584	127	21.75	100	75
Morgan Stanley	Pure investment banks	625	138	22.08	50	75
Citigroup	Hybrid	588	153	26.02	300	75
UBS Warburg	Hybrid	110	32	29.09	50	25
Total of major underwriters		3861	905	23.44	900	450
All other underwriters		142	25	17.61	-	-
Total		4003	930	23.23	-	-

<sup>a</sup> J.P. Morgan is classified as a pure commercial bank merger because Chase Manhattan merged with Chemical Bank in 1996, but with Hambrecht & Quist at the end of 1999, then with J. P Morgan at the end of 2000. The merger pattern is quite different from other hybrid mergers; therefore, it is classified as a different group.

**Table 3**  
**Frequency distribution of sample and issue maturity by year**

This table reports issue maturity, the number and percentage of bond-underwriter observations during 1996-2000 of sued clients (those that were subject to securities fraud class actions during 1996-2002). The sample consists of 4003 industrial bond-underwriter observations. Bonds underwritten by more than one lead underwriter are repeated based on the number of co-lead underwriters and treated as different observations because the characteristics of underwriters associated with each bond are different. The difference in mean (median) between groups is tested by *t*-test (Wilcoxon test).

Year	Obs.	Number		Issue maturity (years)		Non-sued		Difference in issue maturity	
		Sued	%	Sued	Non-sued	Mean	Median	t-stat	z-stat
1996	671	152	22.65	Mean	Median	Mean	Median	-1.47	-0.61
1997	870	175	20.11	10.8	10.0	12.6	10.0	-2.22**	-4.27***
1998	1038	233	22.45	10.5	7.0	13.4	10.0	-2.43**	-4.68***
1999	695	210	30.22	10.3	7.0	12.2	10.0	-1.78*	-4.31***
2000	729	160	21.95	9.4	6.2	10.6	10.0	-1.27	-2.49**
Total	4003	930	23.23	8.4	5.0	9.4	7.0	-4.28***	-7.62***

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

**Table 4**  
**Frequency distribution of sample and underwriter relationships by year and by syndicate type**

This table reports underwriter relationships, the number and percentage of bond-underwriter observations during 1996-2000 of sued clients (those that were subject to securities fraud class actions during 1996-2002) by syndicate type. The sample consists of 4003 industrial bond-underwriter observations. Bonds underwritten by more than one lead underwriter are repeated based on the number of co-lead underwriters and treated as different observations because the characteristics of underwriters associated with each bond are different. The difference in percentage between groups is tested by z-statistic. The difference in mean (median) between groups is tested by t-test (Wilcoxon test).

Year	Number of underwriter relationships				Difference				
	Obs.	Number Sued	% Sued	Sued Mean	Non-sued Mean	Sued vs. non-sued t-stat	Sued vs. non-sued z-stat		
Panel A: Sole-led syndicate									
1996	629	140	22.3	4.1	3.0	2.0	2.0	9.47***	7.85***
1997	759	153	20.2	4.0	3.0	2.5	2.0	6.35***	5.08***
1998	814	165	20.3	4.5	4.0	3.0	2.0	6.13***	5.85***
1999	399	114	28.6	5.8	5.0	3.7	3.0	5.76***	5.93***
2000	303	60	19.8	6.0	4.5	2.9	2.0	6.61***	3.76***
Total	2904	632	21.8	4.7	4.0	2.7	2.0	15.21***	12.96***
Panel B: Co-led syndicate									
1996	42	12	28.6	3.8	3.0	0.8	0.0	4.64***	3.32***
1997	111	22	19.8	1.5	1.0	1.7	1.0	-0.63	-0.7
1998	224	68	30.4	3.3	3.0	2.3	2.0	2.90***	3.39***
1999	296	96	32.4	2.9	2.0	1.9	1.0	3.29***	2.65***
2000	426	100	23.5	3.7	2.0	1.7	1.0	6.12***	2.93***
Total	1099	298	27.12	3.2	2.0	1.8	1.0	7.91***	5.72***
Panel C: Differences between sole-led and co-led syndicates (all years)									
				z-stat	t-stat	z-stat	t-stat	z-stat	t-stat
				-3.58***	5.98***	7.20***	8.93***	9.02***	

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

**Table 5**  
**Frequency distribution of sample by syndicate structure, by universal banking, and by underwriter merger type**

This table reports the number and percentage of bond-underwriter observations of sued clients based on syndicate structure, universal banking, and underwriter merger type. The sample consists of 4003 industrial bond-underwriter observations from 1996 to 2000. Bond issues underwritten by more than one lead underwriter are repeated based on the number of co-lead underwriters and treated as different observations because the characteristics of underwriters associated with each bond are different. See Table 2 for the underwriter merger types. The difference in percentage of clients being sued is tested by z-statistic.

	Number of observations	Sued (Number)	Sued (%)
Panel A: Syndicate structure			
(1) Sole-led	2904	632	21.76
(2) Co-led by IB and CB (Hybrid syndicate)	674	195	28.93
(3) Co-led by investment banks only	304	71	23.36
(4) Co-led by commercial banks only	121	32	26.45
Percentage differences between groups:	(2)	(3)	(4)
(1) vs.	-7.17***	-1.6	-4.69
(2) vs.		5.57*	2.48
(3) vs.			-3.09
Panel B: Universal banking			
(1) Use investment banks only within 5 years	1545	302	19.55
(2) Switch to investment banks (IB)	1314	362	27.55
(3) Use commercial banks only within 5 years	215	35	16.28
(4) Switch to commercial banks (CB)	929	231	24.87
Percentage differences between groups:	(2)	(3)	(4)
(1) vs.	-8.00***	3.27	-5.32***
(2) vs.		11.27***	2.68
(3) vs.			-8.59***
Panel C: Underwriter merger type			
(1) Non-merger underwriters	1559	354	22.71
(2) Investment banks only merger	941	214	22.74
(3) Hybrid (IB and CB) merger	946	250	26.43
(4) Commercial banks only merger	557	112	20.11
Percentage differences between groups:	(2)	(3)	(4)
(1) vs.	-0.03	-3.72**	2.6
(2) vs.		-3.69*	2.63
(3) vs.			6.32***

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

**Table 6**  
**Frequency distribution of sample by prior securities issuances**

This table reports the number and percentage of bond-underwriter observations of sued clients based on clients' prior securities issuances history. The sample consists of 4003 industrial bond-underwriter observations from 1996 to 2000. Bond issues underwritten by more than one lead underwriter are repeated based on the number of co-lead underwriters and treated as different observations because the characteristics of underwriters associated with each bond are different. The difference in percentage is tested by z-statistic.

	Full sample			Sole-led syndicate			Co-led syndicate			Diff. (z-stat)
	Number of observations	Sued (Number)	Sued (%)	Number of observations	Sued (Number)	Sued (%)	Number of observations	Sued (Number)	Sued (%)	Sole- vs. Co-led
Panel A: Client issued bonds within the 5-year period prior to the current bond issue										
No	984	132	13.41	593	65	10.96	391	67	17.14	-2.78***
Yes	3019	798	26.43	2311	567	24.53	708	231	32.63	-4.27***
Diff. (z-stat)			-8.40***			-7.15***			-5.53***	
Panel B: Client issued equity within the 5-year period prior to the current bond issue										
No	2998	631	21.05	2201	443	20.13	797	188	23.59	-2.05***
Yes	1005	299	29.75	703	189	26.88	302	110	36.42	-3.03***
Diff. (z-stat)			-5.65***			-3.78***			-4.27***	
Panel C: Client used at least 6 different underwriters in bond and/or equity markets within the 5-year period prior to the current bond issue										
No	3346	668	19.96	2353	438	18.61	993	230	23.16	-3.01***
Yes	657	262	39.88	551	194	35.21	106	68	64.15	-5.57***
Diff. (z-stat)			-11.05***			-8.50***			-9.02***	

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

**Table 7****Univariate comparisons of sued and non-sued clients and their associated bond issues**

This table compares the characteristics of observations associated with sued clients versus non-sued clients. The initial sample consists of 4003 industrial bond-underwriter observations from 1996 to 2000. Bond issues underwritten by more than one lead underwriter are repeated based on the number of co-lead underwriters and treated as different observations because the characteristics of underwriters associated with each bond are different. The amounts of loan deals are aggregated for each bond issue if issuing date is between loan origination date and loan maturity date. Loans from commercial bank underwriters (underwriter loans) are pro rata based on lender share or 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.

Variable	Sued			Non-sued			Difference: Sued vs. Non-sued	
	Obs.	Mean	Median	Obs.	Mean	Median	t-stat.	z-stat.
Underwriter reputation (yearly issue share, %)	930	10.55	11.52	3073	11.0	13.1	-2.15**	-1.81*
Number of bonds issued within prior 5 yrs	798	18.79	12	2221	17.81	7.0	0.84	8.28***
Total amount of bonds issued within prior 5 yrs (\$MM)	798	2507	1561	2221	1396	629	12.99***	11.0***
Number of equities issued within prior 5 yrs	299	1.41	1.0	706	1.45	1.0	-0.64	-1.29
Total amount of equities issued within prior 5 yrs (\$MM)	299	816	416	706	397	210	8.9***	8.61***
Number of underwriters used within prior 5 yrs	798	4.89	4.0	2221	3.45	3.0	13.11***	10.04***
Underwriter loans/total assets (%)	220	5.62	1.99	530	8.26	3.72	-2.44**	-5.28***
Total bank loans/total assets (%)	855	43.19	28.82	2241	42.32	23.78	0.17	2.68***
Market value of equity (\$billions)	890	29.10	15.48	2580	16.48	4.43	10.22***	15.10***
Tobin's q	887	1.50	1.18	2504	1.42	1.10	1.0	4.8***
Total debt/total assets (%)	910	34.55	31.75	2717	32.83	30.67	2.74***	1.68*
Operating income/total assets (%)	841	14.42	12.49	2715	14.48	14.82	-0.19	-3.22***
Interest expense/operation income (%)	835	16.77	13.51	2698	22.81	15.19	-1.33	-5.08***
Cash/total assets (%)	910	6.03	2.76	2708	4.55	2.42	5.62***	2.48**
Net yield (basis point spread)	739	122.05	85	2516	146.72	107	-4.62***	-6.22***
Issue maturity (years)	930	9.86	7.0	3073	11.76	10.0	-4.28***	-7.62***
Issue size (\$MM)	930	320.92	167.50	3073	228.43	150.00	6.54***	5.02***
Days between bond issuance and subsequent lawsuit	756	840.88	797	-	-	-		

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

**Table 8**  
**Logit regressions of securities fraud lawsuits**

The dependent variable equals one if the bond issuer is sued in a securities fraud class action lawsuit during 1996-2002; 0 otherwise. The period of bond issuance covers 1996 to 2000. Bond issues underwritten by more than one lead underwriter are repeated based on the number of co-lead underwriters and treated as different observations because the characteristics of underwriters associated with each bond are different. Therefore, z-test is based on robust standard errors of White (1980) while allowing observations to be correlated within issuing client. See Table 1 for the definitions of financial infrastructure variables and Table 2 for underwriter merger types. The amounts of loan deals are aggregated for each bond issue if issuing date is between loan origination date and loan maturity date. Loans from commercial bank underwriters (underwriter loans) are pro rata based on lender share or 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. Model (1) uses all bond-underwriter observations. Model (2) uses unique bond issues. The characteristics of the underwriter are based on the first underwriter in a co-led syndicate. Industry dummies based on one-digit SIC codes (2, 3, 4, 5, 7, and 8), yearly dummies (1997 – 2000), and intercept are included, but the results are not reported.

**Table 8** (Continued)

Variable	(1) All observations		(2) First underwriter	
	Estimate	z-test	Estimate	z-test
<b><i>Individual Underwriter Reputations</i></b>				
Underwriter reputation (yearly issue share)	-0.02	-1.66*	-0.04	-2.31**
<b><i>Group Underwriter Reputations</i></b>				
Two underwriter relationships (ind. var.)	0.48	1.20	0.69	1.75*
Three underwriter relationships (ind. var.)	0.52	1.03	0.78	1.50
Four underwriter relationships (ind. var.)	0.63	0.91	1.17	1.72*
Five underwriter relationships (ind. var.)	0.54	0.70	0.91	1.17
Well-connected client (ind. var.)	1.41	1.74*	1.57	1.91*
Hybrid co-led syndicate (ind. var.)	1.04	2.65***	0.88	2.11**
Pure CB co-led syndicate (ind. var.)	0.69	1.33	0.51	0.93
Pure IB co-led syndicate (ind. var.)	0.23	0.48	0.02	0.03
IB-led-CB co-managed (ind. var.)	-0.58	-2.24**	-0.49	-1.89*
CB-led-CB co-managed (ind. var.)	-0.22	-0.56	0.15	0.30
<b><i>Universal Banking</i></b>				
Commercial bank lead (ind. var.)	-0.35	-0.90	-0.02	-0.03
Use only investment banks (ind. var.)	0.63	1.58	0.68	1.69*
Use only commercial banks (ind. var.)	0.91	1.88*	0.91	1.68*
Ln(1+underwriter loans)	0.02	0.25	-0.08	-0.64
Hybrid merger (ind. Var.)	0.01	0.04	-0.07	-0.30
Pure IB merger (ind. var.)	0.04	0.14	-0.22	-0.75
<b><i>Control Variables</i></b>				
Ln(1+issue size)	0.14	1.23	0.10	0.94
Issue maturity (years)	-0.01	-1.53	-0.01	-1.53
Ln(1+no. past bond issues)	-0.34	-1.36	-0.39	-1.55
Ln(1+no. past equity issues)	0.61	1.47	0.49	1.24
Ln(1+total loans)	0.11	1.29	0.20	2.45***
Ln(1+market value of equity)	0.47	2.87***	0.46	2.85***
Credit ratings: Aaa (ind. var.)	2.20	2.58***	1.97	2.11**
Credit ratings: Aa (ind. var.)	0.34	0.63	0.04	0.09
Non-investment grade (ind. var.)	-0.14	-0.29	-0.03	-0.07
Cash/total assets	0.05	2.11**	0.05	2.44**
Tobin's q	-0.09	-0.50	-0.07	-0.51
Total debt/total assets	0.01	1.05	0.004	0.33
Operating income/total assets	-0.01	-0.32	-0.01	-0.25
Interest expense/operating income	-0.0003	-0.79	-0.0003	-0.79
Pseudo-R <sup>2</sup>	0.23		0.25	
No. of observations	3273		2801	

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

**Table 9**  
**Bond net yield regressions**

The dependent variable is bond net yield (basis point spread), which 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. Bond issues underwritten by more than one lead underwriter are repeated based on the number of co-lead underwriters and treated as different observations because the characteristics of underwriters associated with each bond are different. Therefore, *t*-test is based on robust standard errors of White (1980) while allowing observations to be correlated within issuing client. Model (1) uses all bond-underwriter observations. Model (2) uses unique bond issues. The characteristics of the underwriter are based on the first underwriter in a co-led syndicate. See Table 1 for the definitions of financial infrastructure variables and Table 2 for underwriter merger types. The amounts of loan deals are aggregated for each bond issue if issuing date is between loan origination date and loan maturity date. Loans from commercial bank underwriters (underwriter loans) are pro rata based on lender share or 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. Monthly 3-month T-bill rate, slope of the yield curve (the rate of a 10-year U.S. Treasury security minus that of a 1-year U.S. Treasury security), and credit spreads between BBB and AAA rated bonds are used to control for underlying macroeconomic conditions, but the results are not reported. One-digit SIC code dummies (2, 3, 4, 5, 7, 8), credit ratings dummies, yearly dummies (1997-2000), and intercept are included, but the results are not reported. Credit rating dummies include Moody's ratings of Aa, A, Baa, Ba, B, C, and non-rated.

**Table 9** (Continued)

Variable	(1) All observations		(2) First underwriter	
	Estimate	<i>t</i> -test	Estimate	<i>t</i> -test
<b><i>Individual Underwriter Reputations</i></b>				
Underwriter reputation (yearly issue share)	-0.51	-1.41	-0.46	-1.47
<b><i>Group Underwriter Reputations</i></b>				
Four underwriter relationships (ind. var.)	-9.67	-1.50	-10.66	-2.20**
Five underwriter relationships (ind. var.)	-8.93	-1.14	-7.56	-1.05
Well-connected client (ind. var.)	-15.59	-1.76*	-17.64	-2.23**
Hybrid co-led syndicate (ind. var.)	-11.13	-1.72*	-8.34	-1.32
Pure CB co-led syndicate (ind. var.)	-13.49	-1.87*	-10.85	-1.31
Pure IB co-led syndicate (ind. var.)	11.78	0.99	4.37	0.44
IB-led-CB co-managed (ind. var.)	0.98	0.18	7.34	1.88*
CB-led-CB co-managed (ind. var.)	10.88	2.19**	7.80	1.25
<b><i>Universal Banking</i></b>				
Commercial bank lead (ind. var.)	-4.02	-0.67	-8.31	-1.32
Use only investment banks (ind. var.)	-2.69	-0.53	-4.12	-0.88
Use only commercial banks (ind. var.)	-3.96	-0.56	2.36	0.33
Ln(1+underwriter loans)	-0.23	-0.26	0.47	0.37
Hybrid merger (ind. var.)	-4.20	-1.31	-2.87	-0.83
Pure IB merger (ind. var.)	-3.73	-0.80	-1.68	-0.40
<b><i>Control Variables</i></b>				
Issue size/total assets	0.11	6.37***	0.11	5.99***
Issue maturity (years)	0.97	9.32***	0.87	10.12***
Ln(1+no. past bond issues)	2.42	0.76	2.75	1.09
Use same prior debt underwriter	-4.29	-0.75	-4.59	-1.29
Ln(1+no. past equity issues)	-5.78	-0.72	-5.25	-0.88
Use same prior equity underwriter	1.25	0.17	5.25	0.84
Ln(1+total loans)	0.87	0.70	-0.33	-0.37
Ln(1+market value of equity)	-4.37	-1.58	-4.58	-1.43
Cash/total assets	0.88	2.79***	0.86	2.77***
Tobin's <i>q</i>	-0.24	-0.40	-0.37	-0.40
Total debt/total assets	-0.19	-0.85	0.01	0.03
Operating income/total assets	-0.46	-1.07	-0.68	-2.01**
Interest expense/operating income	0.03	6.39***	0.03	6.48***
Adjusted-R <sup>2</sup>	0.68		0.73	
No. of observations	2620		2171	

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

## **Appendix A**

### **Logit regressions of securities fraud class actions incidence for large issuers and large firms**

The dependent variable equals one if the bond issuer is sued in a securities fraud class action lawsuit during 1996-2002; 0 otherwise. The period of bond issuance covers 1996 to 2000. The samples contain only large firms in Model (1) and large issuers in Model (2), i.e., those in the top 60 percentiles in the market value of equity and in real issue amounts in 1990 constant dollars, respectively. Bond issues underwritten by more than one lead underwriter are repeated based on the number of co-led underwriters and treated as different observations because the characteristics of underwriters associated with each bond are different. Therefore, z-test is based on robust standard errors of White (1980) while allowing observations to be correlated within issuing client. See Table 1 for the definitions of financial infrastructure variables and Table 2 for underwriter merger types. The amounts of loan deals are aggregated for each bond issue if issuing date is between loan origination date and loan maturity date. Loans from commercial bank underwriters (underwriter loans) are pro rata based on lender share or 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. Industry dummies based on one-digit SIC codes (2, 3, 4, 5, 7, and 8), yearly dummies (1997 – 2000), and intercept are included, but the results are not reported.

**Appendix A (Continued)**

Variable	(1) Large firms		(2) Large issuers	
	Estimate	z-test	Estimate	z-test
<b><i>Individual Underwriter Reputations</i></b>				
Underwriter reputation (yearly issue share)	0.00	-0.07	-0.01	-0.33
<b><i>Group Underwriter Reputations</i></b>				
Well-connected client (ind. var.)	0.89	1.76*	1.16	1.67*
Hybrid co-led syndicate (ind. var.)	0.91	1.89*	0.61	1.52
Pure CB co-led syndicate (ind. var.)	-0.71	-1.29	0.03	0.06
Pure IB co-led syndicate (ind. var.)	0.33	0.51	0.25	0.53
IB-led-CB co-managed (ind. var.)	-0.30	-0.87	-0.01	-0.03
CB-led-CB co-managed (ind. var.)	-0.39	-0.70	-0.23	-0.53
<b><i>Universal Banking</i></b>				
Commercial bank lead (ind. var.)	-1.37	-2.71***	0.22	0.47
Use only investment banks (ind. var.)	0.71	1.38	0.40	0.82
Use only commercial banks (ind. var.)	1.06	0.81	0.58	0.98
Ln(1+underwriter loans)	0.27	2.86***	0.01	0.17
<b><i>Control Variables</i></b>				
Ln(1+issue size)	0.05	0.34	0.89	3.15***
Issue maturity (years)	-0.004	-0.52	-0.01	-1.40
Ln(1+no. past bond issues)	-0.52	-1.95**	-0.20	-0.91
Ln(1+no. past equity issues)	0.38	0.59	0.13	0.35
Ln(1+total loans)	0.42	2.32**	-0.03	-0.44
Ln(1+market value of equity)	0.12	0.28	0.51	2.72***
Credit ratings: Aaa (ind. var.)	5.03	2.82***	2.03	2.62***
Credit ratings: Aa (ind. var.)	0.45	0.89	0.09	0.15
Non-investment grade (ind. var.)	0.55	0.63	0.12	0.23
Cash/total assets	0.11	2.17**	0.01	0.74
Tobin's q	-0.39	-1.30	-0.04	-1.46
Total debt/total assets	0.06	2.15**	0.02	2.02**
Operating income/total assets	0.02	0.29	-0.04	-1.37
Interest expense/operating income	-0.02	-0.90	-0.001	-0.87
Pseudo-R <sup>2</sup>	0.27		0.23	
No. of observations	1466		1345	

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