Why Hire Your Rival?
The Case of Bank Debt Underwriting

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August 2016

ABSTRACT

This paper examines the previously undocumented debt underwriting relationship for banks. Publicly-traded investment and commercial banks ("banks") are unique in that they are the only firms capable of underwriting their own securities. Banks, however, hire another underwriter ("rival") in nearly 30% of their debt issuances and do so extensively across bank size, quality, and type. The decision to use a rival is related to expertise, information sharing, as well as our newly-proposed bank-specific (distribution networks, capacity, and ranking) motivations and is costly to issuers. These results provide new evidence of banks' underwriter choice and the pervasive use of rivals.

Keywords: Capital markets; debt issuance; banking; investment banks; underwriting
JEL Codes: G21; G24; G32; G38

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We thank Audra Boone, Naveen Daniel, Diane Denis, Casey Dougal, Isil Erel, Halit Gonenc, Kathleen Hanley, Michelle Lowry, Greg Nini, Michael Pagano, Ralph Walkling, Michael Weisbach, Josh White, Tina Yang, as well as seminar participants at Drexel University, Lehigh University, Loyola-Marymount University, Ohio State University, the U.S. Securities and Exchange Commission, Villanova University, the Eastern Finance Association Annual Meetings, and the European Financial Management Association Meetings for their helpful comments.

† The Securities and Exchange Commission, as a matter of policy, disclaims responsibility for any private publication or statement by any of its employees. The views expressed herein are those of the author and do not necessarily reflect the views of the Commission or of the author's colleagues upon the staff of the Commission.

The debt capital markets play a substantial role in the funding of U.S. public firms. From 1979 to 2014, U.S. firms raised $33 trillion in aggregate debt and $2.1 trillion in 2014 alone.[1] In nearly all of these debt issuances, public firms engaged a financial intermediary to underwrite and place their securities. Underwriters perform a vital role bringing together borrowers and investors as well as credibly reducing transaction/information costs by putting their own reputations at stake (Fang, 2005). Little is known, however, about financial intermediaries' *own* debt issuances. Financial firms (in aggregate) comprise over 30% of all debt issued by U.S. public firms, yet most studies exclude these firms when examining debt issuance and the role of underwriters.

Financial intermediaries are distinct from other firms that raise capital in the public markets. Our sample of public U.S. investment and commercial banks (hereafter jointly referred to as "banks") access the debt capital markets at a much higher frequency than non-financial firms. Banks are also less likely to maintain long-term underwriter relationships relative to other firms. Most importantly, banks have the unique ability to self-underwrite their own securities and may not need to engage an outside firm to issue their debt.

If a financial intermediary employs another bank to underwrite its own debt, it is hiring a potential rival. Given that banks can self-underwrite, it is unclear why they would engage a rival.[2] For many of our banks, securities underwriting is a core business line; for instance, over 12% of J.P. Morgan Chase's (JPM) non-interest revenue in 2014 was investment banking related. By hiring rivals, these banks face the potential loss of debt underwriting market share (from both the issuer's own transactions and those of future clients) and reputation rankings. These issuers also

[1] Aggregate U.S. debt proceeds are obtained from the Securities Data Corporation (SDC) League Tables.
[2] Many banks choose to hire a rival to underwrite their debt offerings, and this choice is not concentrated in small or low-reputation banks. For example, J.P. Morgan Chase (JPM) hired competitors, including Merrill Lynch, Wachovia, Edward Jones, and others, in 26% of its 419 debt offerings; in the remainder of its deals, JPM self-underwrites.

may bear information-related costs, such as hold-up problems and the revelation of core business strategies. As the costs of engaging a rival could be substantial, we explore the extent to which banks hire a different underwriter and the potential costs and benefits from doing so.

We examine why banks that have both the ability and capability to underwrite their own debt choose to hire a rival instead. We define "ability" as a bank having the legal or regulatory approval to underwrite debt. Ability to underwrite debt, however, does not mean that a bank is capable of doing so. We specify "capability" as banks that have underwritten at least one debt offering for *another* firm. These two conditions provide us with a sample of 60 U.S. publicly traded banks both able and capable of underwriting debt between 1979 and 2014. Nearly all of these capable banks, however, hire a rival to underwrite at least some of their own debt offerings. We find that rivals act as the lead or co-lead underwriter in 29% of all debt deals and in 92% of those deals, the issuer takes no role (including syndicate participation) in its own debt issuance.

Our objectives are twofold. First, we provide an understanding of bank debt underwriting and the choice of advisor(s). Deregulation in the U.S. financial markets changed the landscape of debt underwriting drastically in the last two decades. Entry by commercial banks has been shown to ease capital constraints and reduce the costs of issuing debt (Gande, Puri, and Saunders, 1999; Song, 2004). Yet, it is not clear how these changes impacted banks' own issuances or use of rivals relative to self-underwriting. Commercial banks should benefit from deregulation by issuing more debt (perhaps through self-underwriting) or altering their capital structure. We find evidence that commercial banks become more frequent issuers and increase leverage after regulatory changes; however, both commercial and investment banks continue to frequently hire rivals.

The second objective is to understand why banks hire a rival even when they have the capability to underwrite their own debt. The motivations behind the choice of underwriter for non-

banks in capital market transactions have been extensively examined (Bharath, Dahiya, Saunders, and Srinivasan, 2007; Burch, Nanda, and Warther, 2005; Krigman, Shaw and Womack, 2001; Rau, 2000). With the exception of Muscarella and Vetsuypens (1989), which examines the self-underwriting role of investment banks in their IPOs, there is no evidence of what motivates commercial or investment banks to hire another bank as an underwriter in debt offerings.

We focus on existing reasons for underwriter selection, broadly categorized into expertise and information, as well as propose new rationales unique to banks. "Expertise" includes bank reputation and quality (Krigman et al., 2001; Yasuda, 2005) in addition to experience and specialization (Fang, 2005). "Information" motives suggest that advisors may provide certification, or reduce information asymmetries between firms and investors. As the issuer-advisor relationship strengthens, both parties benefit from increased ease of information flow (Bharath et al., 2007; Yasuda, 2005). This flow of information, however, can lead to costly hold-up problems (Rajan, 1992) or the revelation of proprietary information (Asker and Ljungqvist, 2010). A bank's choice to self-underwrite likely mitigates these potential costs. Expertise and information sharing, however, are likely to be more valuable for lower-quality banks, which may require third-party reputation or outside certification.

In addition, we propose several unique "bank-specific" reasons to explain a bank's advisor choice: distributional network, capacity to underwrite their own debt, and ranking concerns. Some banks may not have sufficient distributional systems to place an issue. Further, banks themselves may be capacity-constrained, either by issue size or number of deals currently on their books. Each self-underwritten deal not only affects a bank's capacity to work with clients, but potentially leads to conflicts of interest if a bank puts its own needs ahead of its clients. Banks are also likely to care about their standing as underwriters, and improvements in the League Tables increase both

reputation and subsequent underwriting market share (Rau, 2000). Thus, banks may try to influence their ranking in these tables by increasing their self-underwritten debt issuances.[3]

We find support for all three motivations, as the explanations for advisor choice are unlikely to be mutually exclusive. As an issuer's expertise declines, it is more likely to hire a rival. Rival usage increases for international and longer-maturity deals (proxies for specialized deals), and when an issuer's market share declines. Information-based reasons also affect rival use. Issuing banks that used rivals frequently in the past are more likely to use one on a given deal (especially for lower quality banks). If an issuer used a particular rival more often than others in the past, however, it is less likely to use one on the current deal, suggesting banks may try to alleviate hold-up problems (Rajan, 1992). Using multiple proxies for proprietary information, we find that issuers are less likely to use rivals in privately placed issues, as the relative deal size increases, or when they have proprietary or derivatives divisions. These findings are consistent with banks trying to protect private information from rivals (Asker and Ljungqvist, 2010).

When conditioning on bank quality, lower-quality banks are significantly more likely to use rivals (67%) than high-quality ones (19%), which may be driven by limited expertise or the need for reputational enhancement.[4] Rivals may further help to reduce information asymmetries or provide certification of a lower-quality issuer. Non-Top 10 banks, however, are less likely to use a rival when they have high prior-year stock return volatility or lower average debt ratings compared to Top 10 banks. These results could signify that it is too costly for lower-quality banks to obtain certification from outside sources; instead they self-underwrite.

[3] Our bank-specific motivations are not necessarily inclusive. Other reasons for hiring a rival could involve regulatory issues or quid pro quo relations between underwriters. It is also possible banks hire rivals to obtain analyst coverage or to capitalize on prior lending relations. We discuss these alternative motivations more thoroughly in Section I.C.
[4] Bank quality is determined by the annual League Table rankings (Rau, 2000). High quality banks are ranked in the top 10, while lower quality banks are banks ranked below the top 10.

Focusing on bank-specific motivations, we find that banks with weaker distributional networks (proxied by the presence of an asset management arm and the issuer's average syndicate size) are more likely to use a rival. Further, Top 10 banks are more likely to hire a rival if they have capacity constraints; Top 10 banks appear to trade off their own underwriting for that of their clients. Banks that decline in the League Tables are also more likely to use a rival, suggesting rank concerns could affect bank underwriter choice. Banks on the threshold of moving into a different reputational category (i.e., ranked #10 and #11 are on the cusp of being Top 10 ranked), however, are less likely to use rivals. Reputational concerns have real economic consequences: threshold banks with above average self-underwriting relative to all others increase their debt market share by nearly 22% in the next year, while banks with higher rival usage experience a market share decline of nearly 17%.

Lastly, we investigate whether the use of a rival affects an issuing firm's deal terms. When banks hire a rival, gross spreads (direct costs borne by issuer at the issuance) increase by 21 (40) bps for all (Top 10) banks. As the unconditional average gross spread is 64 bps, these higher fees represent an increase of 33% (63%). The decision to hire a rival appears to increase issue costs, particularly for Top 10 banks. This additional increase in spreads seems to be compensation to the rival for bearing the issuing bank's capacity shortfall as well as outside certification.

It is possible that underwriters are similar to real estate agents, in that they both can execute a deal for themselves rather than hire a competitor. However, these parties may not always choose to do the transaction themselves (e.g., busy with another client or may lack expertise). Levitt and Syverson (2008) find that agents who sell their own homes appear to obtain better deals than when selling homes for their clients. We do not find the same for self-underwriting banks. Using a propensity score matching approach, we compare these banks relative to their clients when they

underwrite similar deals. In general, self-underwriters have worse (or no better) spreads, coupons, and yields, suggesting that they do not self-deal or extract better terms.

This is one of the first studies that explores the direct use of a competitor to a firm's main line of business.[5] In particular, we provide insight into banks' decision to use potential rivals as advisors in their debt issuances. Banks have been excluded from previous studies on debt underwriting and advisor choice due to their ability to self-underwrite; however, about 30% of these issuers' debt is underwritten by competing firms. Although there are substantial benefits to self-underwriting (lower costs, reduced information leakage, and potential reputational ranking improvements), banks appear to optimally choose between self-underwriting and hiring a rival.

While our setting focuses on banks and their use of rivals in debt underwriting, our findings have broader implications for why firms might use direct competitors. An underlying tenet of economics is that firms generally desire greater market share and, thus, should not voluntarily give up direct business to a rival. However, we identify a market (debt underwriting) where competitors pervasively yield market share to rivals, which could result in the loss of reputation and clientele. Given the paucity of research on rival usage in the finance literature, we present a number of plausible reasons why banks (and possibly others) could benefit from the direct use of a rival.

I. Motivating Banks' Advisor Choice

I.A Financial Firms and the Effect of Deregulation

Financial firms issue a large fraction of U.S. total debt, averaging 32% of all new debt raised annually since 1979, based on SDC League Tables (Figure 1). Prior studies on debt issuance and underwriting, however, exclude banks in part due to their ability to underwrite their own debt.

[5] Chen, Hong, Jiang, and Kubik (2013) and Debaere and Evans (2016) examine the decision of fund families to outsource to sub-advisors in the mutual fund industry.

From 1979-2014, only 9.5% of all public U.S. banks that issue debt have both the ability and capability to underwrite their own debt, although there is variation across time due to both consolidations and regulatory changes (Figure 2). Prior to widespread deregulation in the late 1980s and 1990s, commercial banks were unable to underwrite their own debt. Investment banks, on the other hand, always have had the ability to do so. In approximately 29% of all debt issues (regardless of whether the issuer is an investment or commercial bank), able and capable banks choose to use a rival as the lead underwriter (Figure 3).

We first discuss the regulatory landscape for commercial banks that, culminating in 1999, allowed their unrestricted entry into the investment banking business. After the collapse of the financial system in the 1920s, these banks were prohibited from engaging in investment banking (underwriting) business (U.S. Banking Act of 1933 or Glass-Steagall Act). From the 1960s into the 1980s, some commercial banks were allowed to underwrite a limited array of securities. In the late 1980s, banks were sanctioned to establish separate (Section 20) subsidiaries to underwrite securities, but were still restricted in activity (e.g., debt underwriting was allowed only in 1989) and the percentage of revenue that these divisions could generate. Over the next decade, additional revocations of the ban were introduced, until the Gramm-Leach-Bliley Act of 1999 removed restrictions for U.S. commercial banks to be fully involved in investment banking business. A timeline of the regulatory revisions is provided in Figure 4.

The effect of increased competition driven by commercial bank entry into the investment bank arena has been examined for non-bank debt issuers. Commercial banks charged lower fees upon entry into debt underwriting, perhaps to capture market share (Gande et al., 1999; Kim, Palia, and Saunders, 2008; Song, 2004). This entry also affected syndicates, reducing costs (Narayanan, Rangan, and Rangan, 2004). Commercial banks also potentially have an informational advantage

given their long-term lending relations (Boot and Thakor, 2000). Although commercial banks' ability to underwrite debt affected non-banks in their advisor choice, how this change affected banks' own advisor choice is unknown. We use shifts in the regulatory environment to determine how shocks to the number and quality of advisors affect banks' willingness to self-underwrite.

I.B Determinants of Advisor Choice: Expertise and Information

A broad literature explores determinants of advisor choice for non-banks. We categorize these motivations into "expertise" and "information" explanations. Expertise consists of a number of facets, including reputation, specialization, and underwriting experience. Krigman et al. (2001) find non-banks often select highly reputable underwriters as they may provide better or more extensive services. There is some evidence reputable banks obtain better prices and yields than lower quality ones (Datta, Iskandar-Datta, and Patel, 1997; Fang, 2005). Some banks specialize in certain deal types (Berger, Espinosa-Vega, Frame, and Miller, 2005). For instance, reputable banks are more likely to underwrite larger, long-term, investment-grade debt (Fang, 2005).

Similar to non-banks, banks may need to hire more reputable or specialized underwriters. Since JPM's in 2001, this Top 10 bank used rivals as lead underwriters in 26% of its debt issues; however, JPM selected another Top 10 bank in only a quarter of these deals. Reputation alone, therefore, does not fully explain the hiring of rivals. Bank issuers may instead require specialization. In several of JPM's international offerings, it uses an Italian universal bank, UniCredit, to facilitate its deals. We posit that lower-quality banks, on average, are more likely to use a rival to underwrite debt for expertise reasons rather than larger, more reputable banks.

Another determinant of underwriter choice is whether it affects a firm's information environment: issuer or deal certification, reduction in information asymmetry between issuers and investors, or relationship building. Advisors may provide certification of offer or issuer quality

for firms that infrequently access the capital markets (Booth and Smith, 1986; Puri, 1996; Ross, 2010). Underwriters also can reduce information asymmetries between investors and firms, particularly if firms are harder to value (Bharath et al., 2007; Duarte-Silva, 2010; Ross, 2010).

Information transfer, however, between advisors and issuers can be costly. Advisors prefer long-term relations to capitalize on the time and effort needed to provide certification and reduce information asymmetry (Bharath et al., 2007; Yasuda, 2005). Benefits accrue to firms with stronger underwriter relations, including lower fees (Song, 2004; Yasuda, 2005), although the entry of commercial banks after deregulation decreased incentives to invest in firm-specific relations (Anand and Galetovic, 2006). Firms with long-term underwriters may face a hold-up problem (Rajan, 1992), where the bank attains monopoly power over a firm's financing and investment decisions. Hold-up problems can be mitigated by using many advisors; however, each time a new underwriter performs due diligence, sensitive information is revealed, which could lead to information leakage (Asker and Ljungqvist, 2010).[6] By self-underwriting their own debt, banks are in the rare position to reduce both hold-up problems and information leakage.

The information dynamic within an issuer-advisor relationship leads to our second explanation for advisor choice, "information." By exploring issuer and deal characteristics as well as number of competitors hired, we identify reasons related to information that could affect rival use. Lower quality banks are more likely to benefit from using rivals to certify offerings or to reduce information asymmetries than high quality banks.

I.C Determinants of Advisor Choice: Bank-Specific Reasons

As we are the first to explore the use of underwriters for banks, we devise unique "bank-specific" explanations for the underwriter choice. Capable banks must decide between hiring a

[6] A number of studies find that banking firms are relatively more opaque than other types of firms (e.g., Morgan, 2002; Flannery, Kwan, and Nimalendran, 2013).

rival and hiring in-house. Banks with larger distributional networks are more likely to be able to attract investors to new offerings (Huang, Shangguan, and Zhang, 2008), but if an issuing bank does not have sufficient distributional ability, it may require a rival's help. Further, banks do not have unlimited capacity (Asker and Ljungqvist, 2010); each time it underwrites its own debt, the loss of a client emerges as an opportunity cost. Self-underwriting may strain a bank's capacity, but may also lead to conflicts of interest if a bank prioritizes its own deals ahead of its clients.

Banks may also influence their standings in the League Tables by underwriting more of their own debt, thereby adjusting their market share and rankings (Rau, 2000). Each time a bank hires a rival, its own (and rival's) market share are affected. Further, the trade-off between self-underwriting and undertaking a client's deal could be costly; client deals are subject to more information asymmetry and reputation at stake than self-underwriting. These concerns are likely to be more important for firms on the threshold of a different reputational ranking category (e.g., moving from non-Top 10 to Top 10 ranking brackets).

Distributional ability, capacity constraints, and reputation enhancement are reasons for advisor choice applicable solely to banks. All banks are likely impacted by bank-specific motivations, although it is not clear how they will vary with regard to bank quality ex ante. Both high and lower quality banks could face distributional and capacity constraints, albeit for different reasons. Reputational standing concerns, however, are likely to mitigate rival use (particularly for high quality banks), in order to build market share and status.

There could be other bank-specific rationales for hiring a rival. First, regulations may require using a rival. FINRA 5121 mandates members hire a qualified independent underwriter for debt below investment-grade. Only seven issues (0.07%) in our sample are rated below investment grade; thus FINRA 5121 is non-binding. Second, either syndicate or quid pro quo relations could

lead to increased rival usage. For our sample, syndicate relations do not appear to drive rival usage in debt underwriting; banks hire on average 12 (five) different lead underwriters over time (per year). Further, in over 80% of deals where rival banks are engaged, the issuer does not work with this lead advisor on debt syndicates in any capacity in the prior year. Lastly, we explore every pairing of issuer and lead banks (when another bank was selected as a lead) to identify potential quid pro quo relations. We find in only one year an instance where an issuer-lead pair (Bank of America and Morgan Stanley, 2009) hires *each other* as lead underwriters in the same year. These results make it unlikely that quid pro quo relations drive a bank's decision to use a rival.

Numerous papers explore the effect of analyst coverage (Krigman, et al. 2001; Ljungqvist, Marston, and Wilhelm, 2006) and prior lending relations (Bharath, et al., 2007; Drucker and Puri, 2005) on the underwriter choice in equity issuances. Although these reasons appear to influence non-banks' equity underwriter choice, we find no evidence that analyst coverage affects a bank's decision to hire a rival for debt issuances. Likewise, the decision to use a rival does not increase future analyst coverage. Finally, Francis, Hasan, and Liu (2015) find less than 1% (approximately $16 billion) of total U.S. bank lending is between banks; prior lending relations appear unlikely to influence a bank's decision to hire a rival. In our examination of the syndicated loan market, only about 11% of total proceeds for commercial banks are underwritten by a different bank, indicating that lending relationships are unlikely to influence the use of a rival in public debt offerings.

II. Data and Methodology

II.A Data and Sample Selection

To construct our sample of banks, we use the Thomson-Reuters Securities Data Corporation (SDC) Global New Issues database. We obtain all debt offerings issued by U.S. publicly traded commercial and investment banks from 1970 to 2014. This initial dataset consists

of 17,311 deals by 1,117 banks. Matching these banks to the Center for Research in Securities Prices (CRSP) identifiers reduces the dataset to 15,983 deals for 782 firms.

From previous literature, we know that SDC may record debt transactions in multiple steps, which can overstate a firm's relation with a given advisor. As such, we follow the methodology detailed in Burch et al. (2005) to consolidate these transactions. All debt issuances of the same type, coupon, maturity, and advisor issued within a seven-day period are combined into a single, aggregate offering (799 deals). We remove deals with missing transactions values or advisors (35 deals) and match firms with Compustat, eliminating 428 deals (133 banks). We remove 139 deals from 1970 to 1978 due to limited sampling and data availability, yielding a sample of 14,582 deals for 643 banks from 1979 to 2014. Appendix A details our sample construction.

We next identify banks that have both the ability and capability to underwrite debt offerings. As noted, commercial banks are "able" to underwrite debt once legal restrictions were removed while investment banks have always been able to do so. "Capable" banks are those that are both "able" (a necessary condition) and have been the lead underwriter for another firm's debt offering. The date of the bank's first external offering defines when it is capable of underwriting debt. For example, First Union is "incapable" of underwriting its own debt prior to August 2, 1995, when it first underwrote debt for Post Properties, Inc. After this date, it is considered capable of self-underwriting. Our final sample of both able and capable banks contains 9,760 debt issuances for 60 investment and commercial banks.[7] Table 1 presents the sample of banks.

II.B Identification of Using a Rival

Competitive and regulatory changes have led to substantial consolidation in the banking industry. We track our sample banks' identities through time to account for any name changes or

[7] We focus on debt as our banks access equity markets only 388 times (1979 to 2014). For banks that underwrote debt prior to our sample, we use January 1, 1979 as the first lead date to indicate they were capable for our entire period.

mergers. For instance, JP Morgan & Co. is separate from JP Morgan Chase.[8] We classify all advisors used on a specific debt offering by their primary, mutually-exclusive roles into two main categories following Corwin and Stegemoller (2014). A *Lead* advisor is listed as the lead or joint-lead bookrunner, manager, or placement agent, as well as co-lead agent. An *Other* advisor is listed by SDC as an agent, a co-manager, a co-placement manager, or a member of the syndicate.

We classify a bank as using a rival on a debt offering when it hires another bank for the *Lead* advisor role and it is not listed as its own advisor (solo or joint). When banks are classified as *Other* (2% of our sample), it plays a significantly reduced role in a non-lead capacity (i.e. syndicate member) on that deal (Corwin and Schultz, 2005). If the firm does not have any role in the deal, it is classified as having *No Role* for that specific deal.

Table 1 shows the propensity of our sample to self-underwrite ("lead") compared to hiring a rival ("other" or "no role"). For example, JPM issues debt 419 times and is the *Lead* advisor 74% of the time. In the remaining 26%, JPM has "no role" and relies solely on a competitor to facilitate its deal. In our sample, banks use a rival as the lead in 28.7% of their debt offerings and in 92% of these deals the issuer plays no role, even though they are able and capable to do so.

II.C Data and Variable Construction

We describe the variables used in our analyses and Appendix B contains a comprehensive list. From SDC, we obtain deal-related variables: name and number of all advisors, advisory role (e.g., lead, manager, and syndicate), gross spreads as a percentage of principal (Gross Spread), coupon rate (Coupon), yield to maturity, offer maturity (Maturity), and principal value (Deal Size). We create indicators for whether a deal is an international or private issuance (International Deal

[8] In 1996, Chase Manhattan Bank merged with Chemical Bank forming the new Chase Manhattan Bank, which was acquired by JP Morgan & Co. in 2000 and formed JP Morgan Chase. JP Morgan Chase acquired Banc One in 2004, but remained JP Morgan Chase following that acquisition. Table 1 provides merger completion dates (if applicable) as well as the bank status (i.e., whether it still exists or by whom it was acquired).

or Private Deal) and if it is rated high (AA or higher), mid (A), or low (BAA or lower) based on Moody's ratings in SDC (High Debt Rating, Mid Debt Rating, and Low Debt Rating, respectively).

Market Value of Equity$_{t-1}$, prior returns (Stock Return$_{t-1}$), and stock return volatility (Stock Volatility$_{t-1}$) are from CRSP data. Relative Deal Size is computed as the principal value (SDC) scaled by a firm's market value of equity (CRSP). Cumulative abnormal returns are calculated using the Fama-French (1993) three-factor model based on daily returns for [-253,-1] trading days prior to the offer issue date. Volatility is the standard deviation of prior-year daily returns. Leverage$_{t-1}$, return on assets (ROA$_{t-1}$), and market-to-book ratio (Market to Book$_{t-1}$) are constructed from Compustat data. Financial characteristics are winsorized at the 1% and 99% levels and collected for the fiscal year preceding each debt issuance.

We use SDC League Tables for U.S. public debt market share of each issuer and advisor in the year prior to the debt issuance (Debt Market Share$_{t-1}$), the total financial proceeds (Financial Proceeds$_{t-1}$), and total number of financial deals underwritten by each bank annually (# Financial Deals$_{t-1}$). We also collect a bank's League Table ranking and create indicators classifying whether a bank (either issuer or advisor) is ranked in the Top 10 (Top 10 Rank) in the prior year.

We construct deal characteristic-specific market shares for each bank from SDC data to capture a bank's expertise/reputation (Fang, 2005). The three market share measures are based on a bank's aggregate deal values for international, privately-placed, and long-term (>10 years maturity) debt, computed as the rolling five-year market share by categories (Issuer International, Issuer Private, and Issuer Maturity Expertise, respectively). Even at large banks, the bandwidth to take on all deals may not be possible as they could face capacity constraints on the number or type of deals they undertake (Asker and Ljungqvist, 2010). Using rolling six-month windows to identify the total and financial debt issues underwritten by each issuing bank, we construct our

capacity measure (Financial Debt Capacity$_{t\text{-}6m}$) as the dollar value of all financial firm debt underwritten by a bank scaled by the dollar value of all debt underwritten by the same bank in the previous six-month period. Syndicate Size$_{t\text{-}6m}$, is one measure of a bank's distributional systems, and is measured as the average size of the issuer's syndicate for deals in which it was the lead underwriter in the six months prior to the current deal (excluding all self-underwritten deals).

Several studies show that the relationship strength between issuers and underwriters impacts the benefits and costs of information revelation between those parties (Burch et al, 2005; Corwin and Stegemoller, 2015). We compute relationship metrics for each bank. Using SDC data, we identify the percentage of an issuing bank's self-underwritten offerings in the prior six months relative to the percentage of offerings underwritten by a rival bank (Rival Use$_{t\text{-}6m}$). This measure is not conditional on the identity of the rival, only that a rival is used. We also calculate the frequency that an issuer hires the same lead advisor (whether rival or self) over the prior six months (Advisor Use$_{t\text{-}6m}$). This measure is advisor-specific and is matched on a deal-by-deal basis to the advisor used for that particular issuance (self or externally underwritten).[9]

From the Financial Industry Regulatory Authority (FINRA.org), we identify if a bank has an asset management arm (a proxy for distribution network; see Huang et al., 2008), a proprietary trading desk, or derivatives trading division (proxies for proprietary information; see Biais and Germain, 2002) and create indicator variables (Asset Management, Proprietary Trading, and Derivatives Trading).[10] We also create an indicator if the offer was after Glass-Steagall's repeal (Post-1999) to account for commercial banks' ability to partake in investment banking activities.

[9] Given the frequency banks issue debt and rotate through external advisors, a six-month window for capacity constraints and relationships seems warranted. We also compute Financial Debt Capacity$_{t\text{-}6m}$, Rival Use$_{t\text{-}6m}$, Advisor Use$_{t\text{-}6m}$, and Syndicate Size$_{t\text{-}6m}$ using the prior 12 months and all results are quantitatively similar.

[10] Proxies of proprietary information (i.e. R&D) exist for non-banks; however, similar proxies are more difficult to construct for banks. Biais and Germain (2002) suggest banks trade on private information through their proprietary trading arms. While we cannot capture the degree of proprietary trading, a proprietary trading arm is likely to proxy for a bank's need to protect trading strategies. Similar arguments can be made for derivatives trading.

III. Analysis of Deregulation and the Determinants of Rival Use

III.A Impact of Deregulation

Table 2 provides basic deal (Panel A) and firm characteristics (Panel B) for the 9,760 debt offerings from our sample of 60 U.S. banks. We also split the sample around the repeal of Glass-Steagall (pre- and post-1999) and find significant changes to deal and firm characteristics after the regulatory shock. Prior to deregulation, it was costly for commercial banks to issue debt since they were required to use an investment bank to underwrite their offerings. Removal of regulatory restrictions led to significant changes in the characteristics of our sample banks and are consistent with the entry of commercial banks into the debt underwriting space following deregulation.

On average, banks raise $286 million per debt issuance (Deal Size), similar to non-financials of $263 million (unreported), and while the average size has increased post-1999 (from $101 to $467 million), relative deal size has declined (Panel A).[11] International Deals have grown from 8.8% to 21.9%, while Private Deals have significantly declined from 11.6% to 0.8% post-1999.[12] Further, the percentage of deals underwritten by rivals (Use Rival) declined from 37.3% to 20.4%, while Top 10 underwritten deals (Top 10 %) increased from 53.4% to 73.5%, and is related to the extensive industry consolidation. The proportion of deals by investment banks (IB %) remains relatively unchanged over time (56% versus 58%). Average gross spreads as a percentage of proceeds (Gross Spreads) are 0.64%, and increased from 0.59% to 0.67% over time.

Panel B highlights bank characteristics on a firm-year level. Driven by the entry of large commercial banks, average firm size (Market Value of Equity$_{t-1}$) significantly increases from $8 to $50 billion after deregulation. Leverage$_{t-1}$ declines post-1999, consistent with higher capital

[11] In unreported tests, the median value of either self-underwritten or rival deals is approximately $100 million, indicating that banks do not disproportionately hire rivals for small deals.

[12] Glass-Steagall allowed for several exemptions to bank underwriting restrictions, including the approval to underwrite private debt. Private placements declined once the regulatory bans were lifted.

requirements imposed on commercial banks. On average, banks issue 16 debt offerings per year (Issuances Per Year).

Major regulatory shocks in 1996 (reduction in firewall restrictions and revenue limitations; Neuhann and Saidi, 2014) and 1999 (repeal of Glass-Steagall) changed the competitive landscape and reduced the overall costs associated with debt offerings. Although these regulatory shifts likely impacted all firms, commercial banks were poised to take even greater advantage of debt's lower cost due to their ability to self-underwrite, which could manifest in changes to their offering behavior and capital structure. We first determine whether commercial banks shifted their use of debt after the regulatory changes using three measures related to the offers themselves (Issuances Per Year, Average Deal Size, and Total Proceeds) as well as Leverage_{t-1}. We recognize, however, that this is likely relevant only for banks both able and capable of self-underwriting.

In Table 3, we explore if large commercial banks (in the top quartile based on assets) are different from all other debt-issuing firms conditioning on changes in regulation using firm-year observations.[13] We construct an interaction term between large commercial banks (Large CB) and indicators to control for deregulatory events (either August 1, 1996, odd-numbered columns, or post-1999, even-numbered). These interactions capture the change in debt issuances driven by deregulation and isolate the effect for commercial banks. Deregulation led large commercial banks to significantly increase their leverage (Columns 1 and 2) as well as the frequency (Columns 3 and 4) and size of their issues (Total Proceeds, Columns 5 and 6; Average Deal Size, Columns 7 and 8) relative to others. These findings suggest debt became either easier or less costly to issue for commercial banks. Both investment and commercial banks, however, continue to hire rivals at high frequencies. In the remainder of the paper, we explore motivations for doing so.

[13]The reference group in the regressions includes all other financials (small commercial banks, investment banks, and others) as well as all non-financial firms.

III.B Analysis of Advisor Choice

In Table 4, we segment by rankings to capture bank reputation and compare underwriting characteristics on a firm-year basis (all differences are significant at the 1% level).[14] We split banks into Top 10 and non-Top 10 based on League Table rankings to construct quality measures. High quality banks are likely to self-underwrite more, as the need for outside reputation or certification is likely lower. Consistent with our predictions, Top 10 banks have a larger percentage of the overall and financial debt markets (4.82% and 4.60%, respectively) than non-Top 10 banks (0.17% and 0.21%, respectively). Top 10 banks self-underwrite nearly 90% of their debt, relative to 28% for non-Top 10. Nearly 38% of the total financial debt underwritten by a Top 10 bank each year is its own debt (Self-Underwritten %), compared to 22% for non-Top 10 banks. Conditional on using a rival (Panel B), Top 10 banks are less likely to use another Top 10 bank compared to non-Top 10s (32% versus 64%; Advisor Top 10 Rank), and average advisor League Table rank (Advisor Debt Rank) is significantly lower (23 versus 7, rank = 1 is top-ranked).

In Panel C, we explore when a rival is hired, and compare characteristics of issuers to their underwriters. Hired rivals underwrite more debt than the issuers, in terms of proceeds and number of deals (Financial Proceeds$_{t-1}$ and # Financial Issues$_{t-1}$), have greater financial market share (1.9% versus 0.9%, respectively; Financial Market Share$_{t-1}$), higher League Table rankings (10 versus 27 for self-issuers; Financial Debt Ranking$_{t-1}$), and are more likely to be Top 10 banks (60% versus 15%). Combined with Panel B, issuing banks may specifically avoid hiring "direct" rivals or those in close ranking proximity. Consistent with issuers hiring rivals to gain expertise, issuers have significantly less experience in international, private, and long-maturity debt deals than the rivals

[14] We segment by rankings (Top 10 or non-Top 10) rather than bank type (commercial or investment). Prior to 1996, commercial banks were generally restricted from underwriting activities, while after the 2008 financial crisis, many investment banks reorganized as commercial banks. Prior to the financial crisis, the median market value of banks is virtually identical ($6.2 billion for Top 10 banks compared to $6.1 billion for non-Top 10 banks).

they hire (Advisor > Issuer Expertise). In Panel D, roughly 78% of rivals are ranked higher than the issuing bank, although this varies greatly by Top 10 (19%) versus non-Top 10 (89%).

In the remainder of Section III, we explore the expertise, information, and bank-specific motivations to determine why capable banks choose to hire a rival to underwrite their debt. We focus on deal- and bank-characteristics in our base model (similar to Fang, 2005; Yasuda, 2005), and then construct a series of variables to capture our potential explanations for advisor choice. Since results are likely to vary based on the quality of the issuing bank, we also partition by whether it was a Top 10 bank at the time of the issue. Due to regulatory changes that culminated in the repeal of the Glass-Steagall Act in 1999, we include a Post-1999 indicator variable to capture shifts driven by the exogenous shock to the competitive environment in all of our regressions. As noted in Section II, all variables are defined in Appendix B.

In Table 5, we explore why capable banks hire a rival to underwrite a debt offering, controlling only for bank and deal characteristics, using a linear probability model (LPM) with year and issuer fixed effects.[15] Our dependent variable is an indicator equal to one if the issuer uses a rival bank on the current deal, zero if the bank self-underwrites (Use Rival). Columns 1 and 2 focus on all banks, while Columns 3 and 4 (Columns 5 and 6) examine Top 10 (non-Top 10) issuers.[16] The explanatory variables include indicators for International and Private Deals, Relative Deal Size, log maturity of the issue (in years; log(Maturity)), and in specifications 2, 4, and 6, the issuer's Debt Market Share_{t-1} and thePost-1999 indicator variable.

[15] Typically logit or probit models are used when the dependent variable is dichotomous. To reduce any omitted variable bias between firm- or year-specific characteristics and the error term, it is necessary to control for year and issuer fixed effects. A logit or probit with fixed effects introduces biases in the coefficients and standard errors. A linear probability model (LPM) with fixed effects helps correct these biases. In a LPM, however, the estimated probability of the dependent variable is not bounded between zero and one and tends to be inherently heteroskedastic, which we correct for by estimating with robust standard errors. Results are robust if probit models are used, bank fixed effects are eliminated, or two-way clustering of standard errors by year and issuer is used (Petersen, 2009).
[16] We also interact our Top 10 dummy with all control variables and find qualitatively similar results (unreported).

Table 5 provides evidence that expertise and information motivate hiring a rival. Banks are more likely to hire a rival when issuing international debt (International Deal), suggesting that not all banks have expertise in these deals. Longer maturity deals are likely to be riskier than short-term deals, so the positive coefficient on log (Maturity) suggests issuers may use rivals to certify long-term offerings. Issuers with lower debt market share are more likely to use rivals, indicating they may seek reputation from advisors. Issuers, however, are more likely to self-underwrite in deals that are relatively large (higher Relative Deal Size) or privately placed (Private Deal). Larger deals may require rivals to disseminate more information, while privately placed deals provide less information in their filings relative to public offerings. Although these are imperfect proxies for proprietary information, both suggest that when information is costly to reveal (Asker and Ljungqvist, 2010), an issuer is less likely to hire a rival. Consistent with Table 2, issuing banks overall are less likely to use rivals after the repeal of Glass-Steagall.[17]

III.C Expertise and Information

We next focus specifically on how expertise (reputation, specialization, and experience) and information (certification, relationship building, and proprietary information) affect an issuer's decision to hire a rival (Table 6). The base specifications reported in Table 6 are the same as Table 5, augmented with additional expertise or information measures. As our controls are of the same signs and magnitudes as in Table 5, we suppress these for expositional purposes.

Table 6, Panel A, reports results for expertise, where we expand our definition from Table 5 to include market-share based measures for international, private, and long-maturity debt deals. The smaller an issuing bank's market share is in a particular category, the more likely it will hire

[17] In unreported tests, we exclude all deals pre-2000 to control for regulatory shifts that may have affected the propensity or the motivations for hiring a rival. We also replace issuer debt market share (Debt Market Share$_{t-1}$) with the advisor's debt market share to account for the underwriter's market share (instead of the issuer's). We include log of deal size instead of relative deal size. Our results are qualitatively similar using any of these modifications.

a rival due to limited expertise or specialization. Regardless of bank quality, banks with lower prior experience or specialization in international offerings (Issuer International Expertise, Columns 1, 4, and 7) are more likely to hire a rival to underwrite their deal. This result carries through to private placement experience and specialization in long-term offerings (Issuer Private Expertise and Issuer Maturity Expertise, respectively), but is concentrated only in Top 10 banks.

Banks may also seek the use of rivals to help certify specific issues (or themselves) or to reduce the information asymmetry between themselves and investors. Alternatively, banks may be more likely to self-underwrite if they are concerned about information leakage to rivals. In Table 6, we broadly test the information hypothesis related to certification (Panel B), relationship building (Panel C), and proprietary information (Panel D). As noted in Table 5, the base specifications include two (noisy) information proxies: Private Deal and Relative Deal Size.

We test the certification component of the information hypothesis in Panel B. While Top 10 rankings could capture an issuer's need for certification, firms with high stock market volatility or low-rated debt are likely riskier or have greater informational asymmetries (Denis and Mihov, 2003; Fu, 2009). These firms may require third-party certification from an outside underwriter to facilitate the deal. We include two other proxies to capture issuer information asymmetries or quality: prior-year stock return volatility (Stock Volatility_{t-1}) and indicators for whether the issue is rated by Moody's AA and above (High Debt Rating) or BAA and below (Low Debt Rating).

In Panel B, issuers with greater stock market volatility (Column 1) and lower-rated issues (Column 2) are more likely to be underwritten by a rival. Both of these are consistent with using rivals to certify riskier issues. The difference in debt ratings is not driven by variations in the overall debt quality between Top 10 and non-Top 10 banks. Around 39% of banks' issues (regardless of bank quality) have High Debt Ratings, while 8% (10.5%) of debt by Top 10 (non-

Top 10) banks have Low Debt Ratings. Conditioning on bank quality, Top 10 banks appear similar to the overall sample (Columns 4 and 5). Lower-quality banks, however, are less likely to use a rival as their stock volatility increases or debt ratings fall (Columns 7 and 8). As a lower quality bank's riskiness increases, it may become too costly to seek outside certification or rival banks may be unwilling to put their own reputation at risk. Alternatively, non-Top 10 banks with highly rated debt may be attractive to rivals as their high-quality deals are relatively easier to place.[18]

Table 6, Panel C, examines the importance of prior relations on the decision to use a rival on a given deal. Numerous studies show that the relation between an issuer and its underwriter is important (Burch, et al, 2005; Fernando, Megginson, and May, 2012). We use two measures to capture relationships and rival use. The first is the percentage of rival-underwritten deals for each bank in the past six months, regardless of the rival identity (Rival $\text{Use}_{t\text{-}6m}$). Our prediction is that greater past use of rivals will lead to greater future rival usage. The second measure captures the strength of the relation with a particular advisor (Burch, et al, 2005), computed as the percentage of deals in the past six months where the current advisor (self or rival) was used by the issuer (Advisor $\text{Use}_{t\text{-}6m}$). If relationships matter, then as the propensity to use a given advisor increases, the more likely the issuer will use the advisor on the current deal (James, 1992). Issuing banks, instead, will be less likely to use a given rival on a current deal if they have repeatedly used the rival in the past when they are concerned about hold-up problems (Rajan, 1992).

Panel C shows that, as past rival usage increases (Columns 1, 4, and 7), banks are more likely to use a rival on the current deal. For all banks, as the percentage of deals underwritten by the current advisor in the past year increases, the likelihood of using a rival on the current deal

[18] We find similar results in Table 6, Panel B based on overall issuer credit ratings (Compustat). We also examine whether the deal rating is above or below the issuer rating. In nearly 20% of all deals, the deal rating is greater than that of the issuer, and in 8.3% of deals, it is below the issuer rating. Using these measures, when the deal rating is greater than (below) the issuer, issuers are less (more) likely to use rivals, particularly if the issuer is a Top 10 bank.

declines. This finding could be a function of more self-underwriting or avoiding potential hold-up problems associated with long-term rival relations. As shown in Table 4, banks use 10 to 13 advisors on average, suggesting that exclusive, long-term bilateral (i.e., quid pro quo) arrangements are not prevalent among banks.[19]

Lastly, in Panel D, we introduce two additional proxies for an issuing bank's private information environment: indicators for whether a bank has a proprietary trading desk or derivatives trading division (Biais and Germain, 2002). These proxies could indicate that the issuing bank has strategies it would prefer to keep in-house and not reveal to competitors (Asker and Ljungqvist, 2010). When the issuing bank has either a proprietary trading desk (Columns 1, 4, and 7) or a derivatives trading division (Columns 2, 5, and 8), they are more likely to self-underwrite their own debt. The results from Panel D provide some evidence that when banks may have proprietary trading strategies, they are less likely to hire a rival.

III.D Bank-Specific Explanations

As shown in Section III.C, both expertise and information contribute to the decision to hire a rival, consistent with studies on underwriter choice for non-banks. In this section, we explore new rationale pertinent only to bank issuers by introducing novel measures that focus on a bank's distributional network to aid in the placement of issues, underwriting capacity, and reputational ranking concerns. We proxy for the distributional network in two ways: an indicator for whether an issuer has an Asset Management division and the average size of the issuer's syndicate in which it was the lead in the prior six months (Syndicate $\text{Size}_{t\text{-}6m}$). Our capacity measure is the percentage of financial deals underwritten by the issuing bank relative to its total underwritten deals (Financial Debt $\text{Capacity}_{t\text{-}6m}$). As this measure increases, banks are more likely capacity constrained.

[19] Similar to banks, non-financials that issue at least 25 debt deals engage 11 to 14 different advisors on average.

Our last two bank-specific measures center on reputational concerns regarding rankings. The first is an indicator equal to one for a decline in a bank's League Table ranking from the prior year ($Rank_t < Rank_{t-1}$). Our second measure captures whether the amount of self-underwritten deals exceeds the difference in total proceeds raised between one bank and the next ranked bank, and is an indicator equal to one if self-underwriting is greater than the difference in proceeds (Self > Difference). League Table ranking is a function of either the number of deals or total proceeds underwritten and is related to the probability of being selected as an underwriter on future deals (Rau, 2000). Through self-underwriting, banks can influence their own ranking and reputation. Further, this should matter more for firms near a qualitative ranking threshold (i.e. Top 5 or 10).

Our prediction is that as either a bank's distributional system or capacity increases, they are less likely to use a rival. We posit that Top 10 banks may be more likely capacity constrained as they underwrite more (larger) deals for external clients. These banks may forgo underwriting their own deals, thus increasing the likelihood that they need to hire a rival for their own issuances. Further, if a bank's ranking declines from the prior year, it likely signals both a drop in quality and a greater need for certification causing the bank to more likely use a rival. If, however, banks can influence their rankings by self-underwriting, we anticipate that banks near a threshold of a "ranked" category (Top 5, Top 10, or Top 20) are less likely to hire a rival.

We test these predictions in Table 7 (distribution, capacity, and decline in rankings) and Table 8 (influence of self-underwriting on threshold banks). Table 7, Panel A depicts the two distributional measures, while Panel B details underwriting capacity and decline in League Table standings. When banks have an asset management division, they are less likely to use a rival (Panel A, Columns 1, 3, and 5). Also, as average syndicate size increases, banks overall and Top 10 banks (Columns 2 and 4) are less likely to use a rival. We find no relation for non-Top 10 banks.

In Panel B, we document the coefficient on capacity changes sign based upon an issuing bank's quality (Columns 1, 3, and 5). For all banks (Column 1), the larger a bank's capacity to underwrite financial debt, the less likely it uses a rival. However, Financial Debt Capacity$_{t\text{-}6m}$ appears to be a binding constraint for Top 10 banks. As the ratio of financial debt to total debt increases for these banks, they are more likely to hire a rival to mitigate capacity shortfalls. Top 10 banks appear to trade-off underwriting their own deals for those of their clients as they reach their underwriting capacity. Finally, as a bank's League Table ranking from the prior year declines (Panel B, Columns 2, 4, and 6), banks are more likely to use a rival, regardless of bank quality.

In Table 8, we concentrate on "threshold" banks that are on the cusp of a particular ratings category, such as Top 5, Top 10, or Top 20. In each year, we isolate banks that are ranked 5 or 6, 10 or 11, and 20 or 21 in the League Tables. Our measure of influence (Self > Difference) is whether the self-underwriting proceeds exceed the difference in total proceeds underwritten between a bank and the next lowest ranked bank.[20] Examining all banks in Column 1, we find no relation between our measure and the likelihood of using a rival. Instead, when we examine threshold banks near the Top 5 (Column 2), Top 5 and 10 (Column 3), and Top 5, 10, and 20 (Column 4), these banks are significantly less likely to use a rival in their debt offerings.[21]

Self-underwriting by threshold banks appears to generate tangible long-term benefits as well. In unreported tests, banks that self-underwrite more in a given year are significantly more likely to increase their overall debt underwriting market share the next year (8.2% compared to a decline of 1.9% for those that use rivals). If we condition on whether a bank's rival usage is above or below average, the effects are magnified: market share increases by 22% for threshold banks

[20] We also use the number of deals instead of total proceeds raised and obtain similar results.
[21] One concern is that banks, particularly those near ranking thresholds, may have seasonality in the proportion of self-underwritten deals in order to influence the League Table rankings. We find no evidence of seasonality in debt issues or the percentage of self-underwritten offers at any point during the year.

that self-underwrite more than average, while those that rely heavily on rivals experience nearly a 17% decline in market share. Consistent with Rau (2000), banks appear to potentially manage their reputation and future market share by choosing to self-underwrite their own deals.

IV. Alternative Specifications

In Section III, we find support for the expertise, information, and bank-specific motivations. In Table 9, we jointly investigate these explanations by including variables that capture components of expertise (Issuer International Expertise), information (Stock Volatility$_{t-1}$; Rival Use$_{t-6m}$; Proprietary Trading), and bank-specific motivations (Financial Debt Capacity$_{t-6m}$; Rank$_t$ < Rank$_{t-1}$). We use a limited probability model and jointly test the traditional and bank-specific motivations for hiring a rival underwriter (Columns 1, 3, and 5). Our results are generally consistent with those found when we examined each explanation separately, suggesting that all three motivations for hiring a rival are important for issuing banks.[22]

The joint tests in Table 9 suggest that expertise, information, and bank-specific rationales are all important in hiring a rival. To obtain a hierarchy of importance in the rival decision, we re-run the models in Columns 1, 3, and 5 as logistic models and calculate the odds ratios (Columns 2, 4, and 6). These odds ratios provide estimates of how a change in any independent variable impacts the likelihood that a bank uses a rival, holding all others at a fixed value. A significant odds ratio greater (less) than one indicates that an increase in the variable increases (decreases) the likelihood that the bank uses a rival in a given deal. Banks are more likely to use rivals as Rival Use$_{t-6m}$ increases and for international deals (Column 2). Top 10 banks (Column 4) are most likely

[22] In our joint test of Table 9, we cannot include all of the variables that we test independently in Tables 6, 7 and 8 due to high levels of correlation between many of them (i.e., the correlation between Proprietary Trading and Asset Management exceeds 0.70). Further, in unreported tests, we examine Top 10 issuers and their decision to use a rival also ranked in the Top 10. These banks are more likely to be seen as "direct" competitors since Top 10 banks are considered both highly prestigious and reputable, and likely offer similar services. When we limit our analysis to Top 10 banks and rivals, our results on why banks hire a rival are consistent with those reported in Table 9.

to use rivals as past stock volatility increases and when their capacity to take on self-underwriting declines. Non-Top 10 banks (Column 6) are most likely to use rivals as both the Relative Deal Size and past rival usage increase. Regardless of bank quality, issuers are more likely to use rivals for international deals and when their reputation has declined from the prior year. Our results provide some explanation for why banks of differential quality are likely to use rivals.

In Table 10, we explore how the use of a rival affects the direct costs of underwriting: gross spreads as a percentage of proceeds raised (Gross Spreads). We implement Tobit models of gross spreads with year and issuer fixed effects and robust standard errors. Due to incomplete data on gross spreads, the number of observations is significantly smaller than for the full sample. We include controls from all previous tables, including explanatory variables from Table 9 (joint test), and augment the regressions with the issuer's prior year stock return (Stock Return_{t-1}) and profitability (ROA_{t-1}), following Burch, et al. (2005). Our main explanatory variable is an indicator variable for whether a bank uses a rival on a given deal (Use Rival).

In general, hiring a rival significantly increases gross spreads, controlling for deal characteristics and proxies for our three reasons for hiring rivals. These costs are magnified for Top 10 banks. In aggregate, the use of a rival to underwrite debt increases fees paid by 21 bps; for Top 10 banks, this nearly doubles to 40 bps. Given that the average fee paid to an underwriter is 64 bps, fees increase by an average of 33% to 63% when using a rival bank.

One concern that arises, however, is that a selection bias exists between deals where rivals are used compared to self-underwritten deals, which may drive the differentials in gross spreads rather than the rival usage itself. We implement a two-stage Heckman correction model similar to that in McCahery and Schweinbacher (2010). In our case, we model the likelihood of using a rival in the first stage (Column 1 of Table 9), and obtain the inverse mills ratio to use as a regressor in

the second stage. The second stage regressions model the impact of using a rival on gross spreads (Columns 2, 4, and 6 in Table 10).[23] Unlike our base Tobit where rival use is associated with an increase in gross spreads, we find a negative sign on the inverse mills ratio. This negative sign indicates that after correcting for the differences in private information between issuers and rivals, rivals would have charged approximately 8 bps less than self-underwriters. These results suggest that when rivals are hired, the issuing bank bears higher costs to compensate the rival for the inherent information asymmetries between the issuer and the underwriter.

We perform a number of robustness tests to confirm the validity of our results. To alleviate concerns that hiring a rival is driven by international deals (the need or requirement to hire a "local" bank when issuing securities overseas), we remove these deals and re-run our analyses (15.4% of our sample). As noted in Section III.A, prior to the repeal of Glass-Steagall most commercial banks were restricted to underwriting privately placed securities (which fall to less than 1% of the sample in the post-1999 period). To ensure that these deals do not impact our analyses, we also remove all private placements (6.11% of our sample). As macroeconomic shocks could affect the decision to hire a rival, we also control for economic downturns with an indicator variable equal to one in the months for National Bureau of Economic Research (NBER) recessions. Consistent with our prior results on certification, Top 10 banks appear to seek certification from other banks in recessionary periods as captured by the significantly positive coefficient on the indicator. The inclusion of this variable, however, does not quantitatively affect any of our results.

An additional concern is that banks may be more (or less) likely to use a rival around information events, such as mergers or earnings announcements, where a firm's informational asymmetry likely is enhanced. We do not find any significant differences in either the number of

[23] McCahery and Schweinbacher (2010) examine the effect of underwriter reputation on gross spreads.

debt issues or the proportion of deals underwritten by rivals around these events. We also examine the effect of rival use on the yield to maturity (a proxy for the cost of debt) and announcement returns, but find no relation between rival use and these other cost measures. Lastly, it may take newly-capable banks time to develop underwriting skills. To alleviate concerns regarding learning by banks, we include an indicator for whether a deal occurs within the first three years of becoming capable, which is significantly related to the likelihood of using a rival. Alternatively, we remove these deals entirely. None of these specifications qualitatively affects our main results.

V. Conclusions

In this paper we explore why able and capable U.S. commercial and investment banks hire rivals to underwrite their own debt offerings. Nearly 30% of our sample deals involve a competitor to facilitate deal placement. Moreover, this behavior is not limited to commercial banks or to lower-quality banks; both investment and commercial banks as well as Top 10 and non-Top 10 ranked banks use rivals extensively to underwrite their own debt issues. We test a number of existing motivations, including expertise and information sharing, and provide new explanations relating to a bank's reputation, as well as its own capacity to underwrite and place a given deal.

Our results provide support for all three motivations affecting advisor choice. When issuing banks seek reputation, experience, or specialization in particular deals, they are more likely to hire a rival. Banks may use external underwriters to certify a given deal (or perhaps themselves) or to reduce information asymmetries between the issuing bank and its investors. While long-term relationships may amortize the cost of information sharing, using rivals can lead to both potential hold-up problems and proprietary information leakage. We find some evidence that banks seek to minimize these costs by strategically deciding when to hire a rival.

Further, bank-specific motivations matter. Banks with less distributional resources are more likely to seek external underwriting. When banks are likely capacity constrained, particularly Top 10 banks, they are more likely to hire rivals (rather than losing potential clients to competitors). In addition, reputational concerns impact the decision to hire a rival, particularly for banks near rank thresholds. These banks appear to benefit from self-underwriting as subsequent underwriting market share significantly increases compared to banks that use rivals.

The choice to hire rivals, however, is potentially costly to the issuing bank. We find that the use of rivals significantly increases the total fees paid by between 33% and 63% over the unconditional average fee. We find no difference in announcement returns or yields to maturity based on whether an issuer self-underwrites or uses a rival, suggesting that investors are relatively indifferent to who underwrites bank's debt. Although fees are higher for banks when rivals are engaged, it does not appear to be a suboptimal decision. Collectively, our results expand our understanding of banks' underwriter choice and show that banks extensively hire their rivals.

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Appendix A: Dataset Construction

This appendix details the construction of our sample of U.S. publicly traded commercial and investment banks' public and private debt issues obtained from the Securities Data Corporation (SDC) Global New Issues database. We collect all debt offerings from SDC between 1970 and 2014, and following the process below we match the dataset to CRSP and Compustat. We further eliminate observations due to lack of required data for our main analyses. The objective is to identify banks that are both "able" (legally permitted) and "capable" (a history of at least one external debt offering) that could possibly underwrite their own debt. Whether these capable banks do underwrite their own debt is not a requirement to classify banks. Our final dataset consists of 9,760 debt issues by 60 firms from 1979 to 2014.

Step	Sample Construction Process	# Deals	# Firms
1	Obtain all debt issuances for U.S. publicly traded investment and commercial banks from SDC between 1970-2014	17,311	1,117
2	Use SDC firm cusip, date, and name information to match the firms to the Center for Research in Securities Prices (CRSP) to obtain firm permnos	15,983	782
3	Follow Burch et al. (2005), collapse all debt deals within a 7-day period of the same type, coupon, maturity, and advisor into a single aggregate offering	15,184	782
4	Remove deals with missing transaction values and with no listed advisors	15,149	776
5	Match firms to Compustat to obtain prior-year financial information	14,721	643
6	Remove all deals from 1970 to 1978 (139 deals) due to limited sampling and data availability	14,582	643
7	Identify and remove those firms that are *not* capable of self-underwriting their own debt issuances. (See below)	10,975	74
8	Eliminate deals with missing specific deal and firm characteristics (e.g., maturity, prior-year debt market share)	9,760	60

To classify whether a bank is capable of self-underwriting their own debt issuances, we perform the following with regards to Step #7 above:

- Obtain a listing of all debt issuances from U.S. publicly traded firms from 1979 through 2014 from SDC (58,936 deals for 7,939 firms)
- For each debt issuance, identify whether a bank is the lead underwriter for a deal
- For each banking firm in the universe, find the first deal where the bank acted as a lead underwriter for another firm
- Using the sample constructed in Step #5 above, cross-match the 643 banks to identify the first possible date (if any) it started underwriting debt deals; classify a bank as "capable" beginning with the data of the first external debt underwriting
- Remove any deals by the bank prior to the date it became "capable" of underwriting debt as well as any banks without external underwriting experience
- The procedure yields a sample of 74 capable banks

Appendix B: Variable Definitions

This table provides descriptions of the variables used in our analyses. Variables related to debt issuances are obtained from Securities Data Corporation (SDC) unless otherwise specified. Financial data are collected from Compustat and stock price data are collected from CRSP. All market ranking information is obtained from SDC League Tables for the year prior to the debt issuance. All firm financial data is for the fiscal year prior to the year of the debt issuance and is winsorized at the 1% and 99% levels.

Variable	Definition
Debt Characteristics	
Use Rival	Indicator equal to 1 if a bank uses a rival bank as the lead advisor in a deal
Deal Size	Principal amount (in millions)
Relative Deal Size	Deal size divided by market value of equity
Maturity (log(Maturity))	Length of time for the bond to mature (in years) (natural log of Maturity)
Coupon	Bond coupon (in percent)
International Deal	Indicator equal to 1 if the offering is coded as AND, ASPD, ECD, ED, or IFD by SDC
Private Deal	Indicator equal to 1 if the offering is coded as PD, R144CD, or R144D by SDC
Gross Spread	Gross spread as a percent of the principal amount; where gross spread represents total manager's fee (management fee, underwriting fee, and selling concession)
Financial and Firm Characteristics	
Market Value of Equity$_{t-1}$	Year-end closing price per share times common shares outstanding (in millions)
Leverage$_{t-1}$	Total long-term debt divided by total assets
ROA$_{t-1}$	Operating income before depreciation divided by total assets
Market to Book$_{t-1}$	Market value of equity divided by common stockholder's equity
Issuances Per Year	Annual issuances per bank
Large CB	Commercial bank in the largest quartile of firms based on assets
Stock Return$_{t-1}$	Cumulative abnormal returns from three-factor model (Fama and French, 1993) based on daily returns (-253, -1) prior to issue date
IB %	Fraction of total deals underwritten by investment banks
Top 10 %	Fraction of total deals underwritten by Top 10 ranked banks (SDC League Tables)
Number of Rivals	Total number of unique lead underwriters
Deals Advised, #$_{t-6m}$	Prior 6-month percentage of total deals underwritten (all firms), based on number of deals
Deals Advised, \$$_{t-6m}$	Prior 6-month percentage of total deals underwritten (all firms), based on deal value
Advised Deal Size	Prior 6-month average deal size underwritten
Total Proceeds	Aggregate amount of debt issuance raised by a firm in a given year
Average Deal Size	Aggregate proceeds raised by a firm in a given year scaled by the number of deals
Self-Underwritten %	Prior year percentage of deals self-underwritten scaled by total issuer financial debt deals
Financial Mkt Share %	Prior year percentage of financial debt scaled by total debt underwritten by the issuer

Appendix B: Variable Definitions (continued)

Reputation Measures from SDC League Tables	
Issuer Top 10 Rank	Indicator equal to 1 if issuer was ranked as a Top 10 debt advisor in prior-year
Advisor Top 10 Rank	Indicator equal to 1 if current advisor was ranked as a Top 10 debt advisor in prior-year
Advisor Ranked Higher	Indicator equal to1 if current advisor is ranked higher than issuer
Advisor Ranked Lower	Indicator equal to1 if current advisor is ranked lower than issuer
Debt Market Share$_{t-1}$	Prior-year issuer or advisor debt market share
Financial Proceeds$_{t-1}$	Total financial firm debt proceeds underwritten in prior year
Financial Market Share$_{t-1}$	Prior-year issuer financial firm debt market share
# Financial Issues$_{t-1}$	Number of financial firm debt deals underwritten in prior year
Financial Debt Ranking$_{t-1}$	Prior-year financial firm debt ranking
Rank$_t$ < Rank$_{t-1}$	Indicator equal to 1 if issuing bank's reputation is lower than in prior year
Self > Difference	Indicator equal to 1 if an issuer's self-underwriting proceeds exceed the difference in total proceeds underwritten between a bank and next lowest ranked bank
Expertise Measures	
Issuer International Expertise	Issuer's market share of international debt offers over prior 5 years
Issuer Private Expertise	Issuer's market share of private debt offers over prior 5 years
Issuer Maturity Expertise	Issuer's market share of long-term (> 10 year maturity) debt offers over prior 5 years
Advisor > Issuer International	Indicator equal to 1 if advisor international debt market share is larger than issuer's
Advisor > Issuer Private	Indicator equal to 1 if advisor private debt market share is larger than issuer's
Advisor > Issuer Maturity	Indicator equal to 1 if advisor long-term debt market share is larger than issuer's
Certification Measures	
High Debt Rating	Indicator equal to 1 if offering is rated AA or higher by Moody's
Mid Debt Rating	Indicator equal to 1 if offering is rated A by Moody's
Low Debt Rating	Indicator equal to 1 if offering is rated BAA or lower by Moody's
Stock Volatility$_{t-1}$	Standard deviation of daily stock returns twelve months prior to debt offer
Relationship Characteristics (based on deal value)	
Rival Use$_{t-6m}$	Prior six-month percentage of an issuer's deals underwritten by all other advisors
Advisor Use$_{t-6m}$	Prior six-month percentage of issuer deals underwritten by current advisor
Capacity Measures (based on deal value)	
Financial Debt Capacity$_{t-6m}$	Prior 6-month financial to total debt offerings underwritten by issuer
Other	
Post-1999	Indicator equal to 1 if offering occurred after repeal of Glass-Steagall in 1999
Asset Management	Indicator equal to 1 if issuer has an asset management division (FINRA.org)
Syndicate Size$_{t-6m}$	Average size of the issuer's syndicate over the past six months, where it is the lead underwriter on a debt issuance, excluding self-underwritten deals
Proprietary Trading	Indicator equal to 1 if issuer engages in proprietary trading (FINRA.org)
Derivative Trading	Indicator equal to 1 if issuer engages in derivatives trading (FINRA.org)

Figure 1: Percentage of Financial to Total Debt

This figure shows the percentage of debt (based on aggregate dollar volume of proceeds offered) issued by all U.S. public financial firms scaled by total debt issued by all U.S. public firms on a yearly basis from 1979 to 2014. Source of data: SDC League Tables.

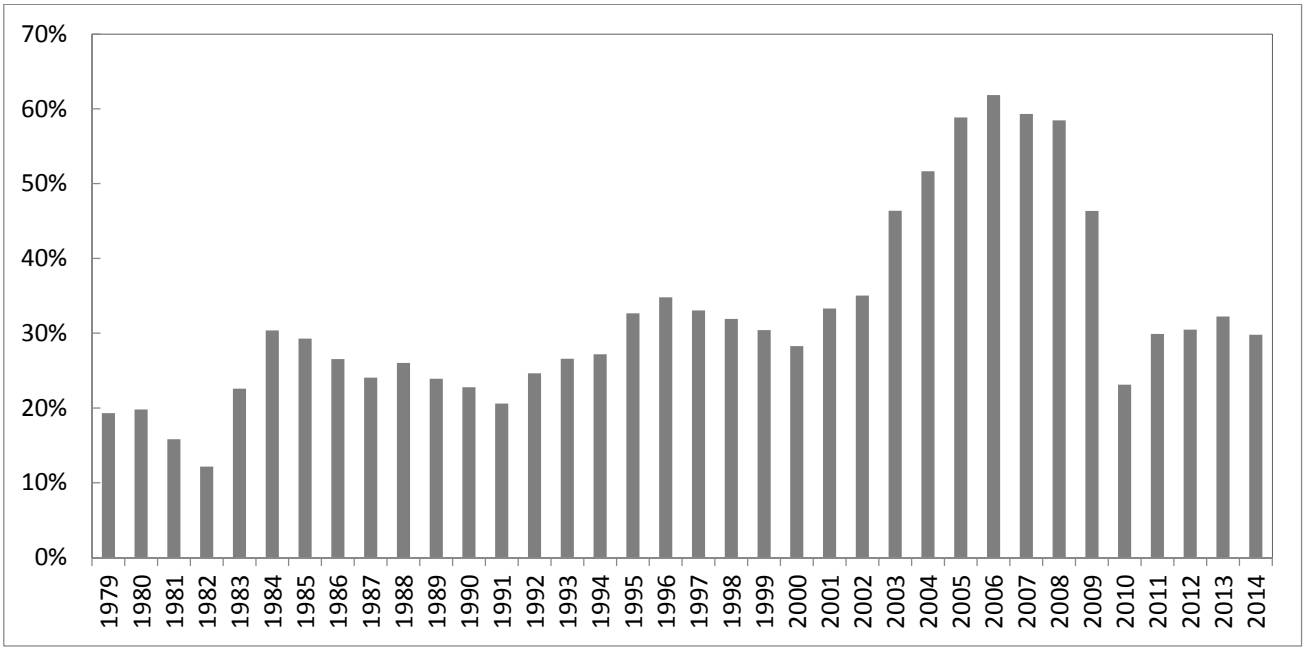

Figure 2: Number of Banks Capable of Underwriting Debt

This figure presents the number of our 60 banks capable of underwriting debt yearly from 1979 to 2014. Appendix A provides details on bank selection criteria and defines capability.

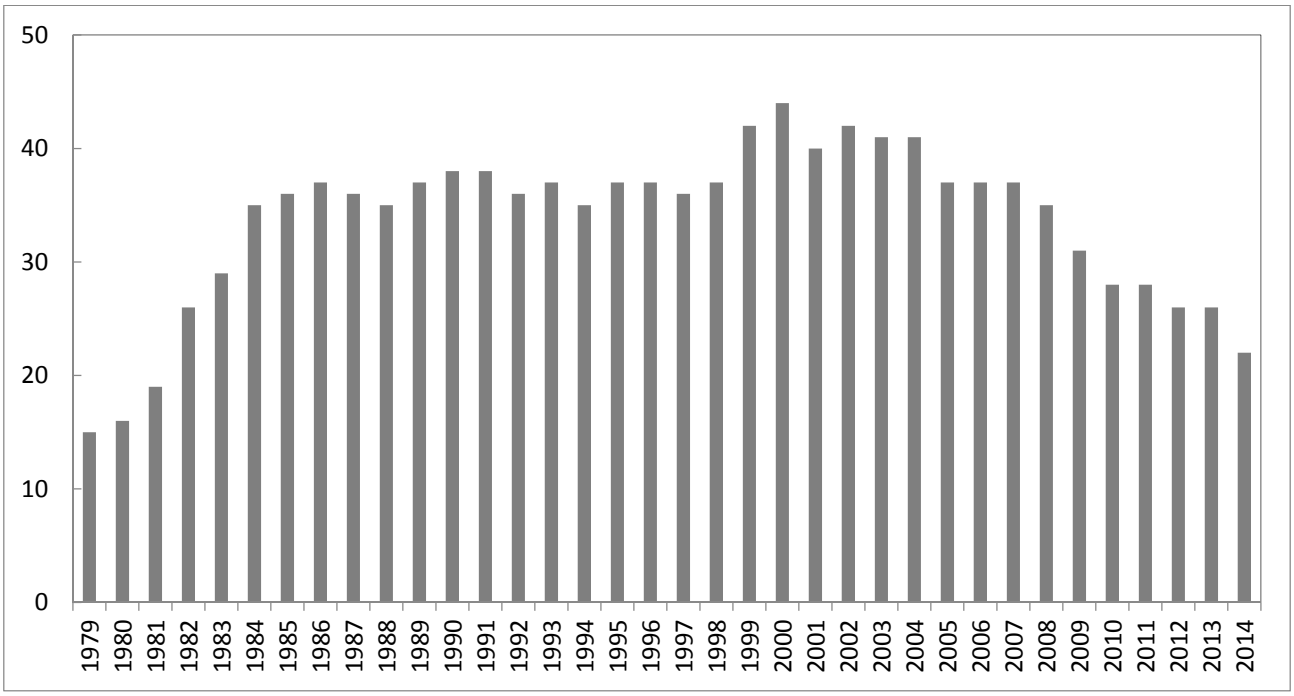

Figure 3: Fraction of Banks that Hire a Rival

This figure provides the fraction of banks that use a rival as a lead underwriter on a yearly basis from 1979 to 2014. The left-hand side axis provides the percentage of issuing banks that use a rival bank as a lead underwriter each year. The right-hand side axis shows the number of debt issuances in that given year.

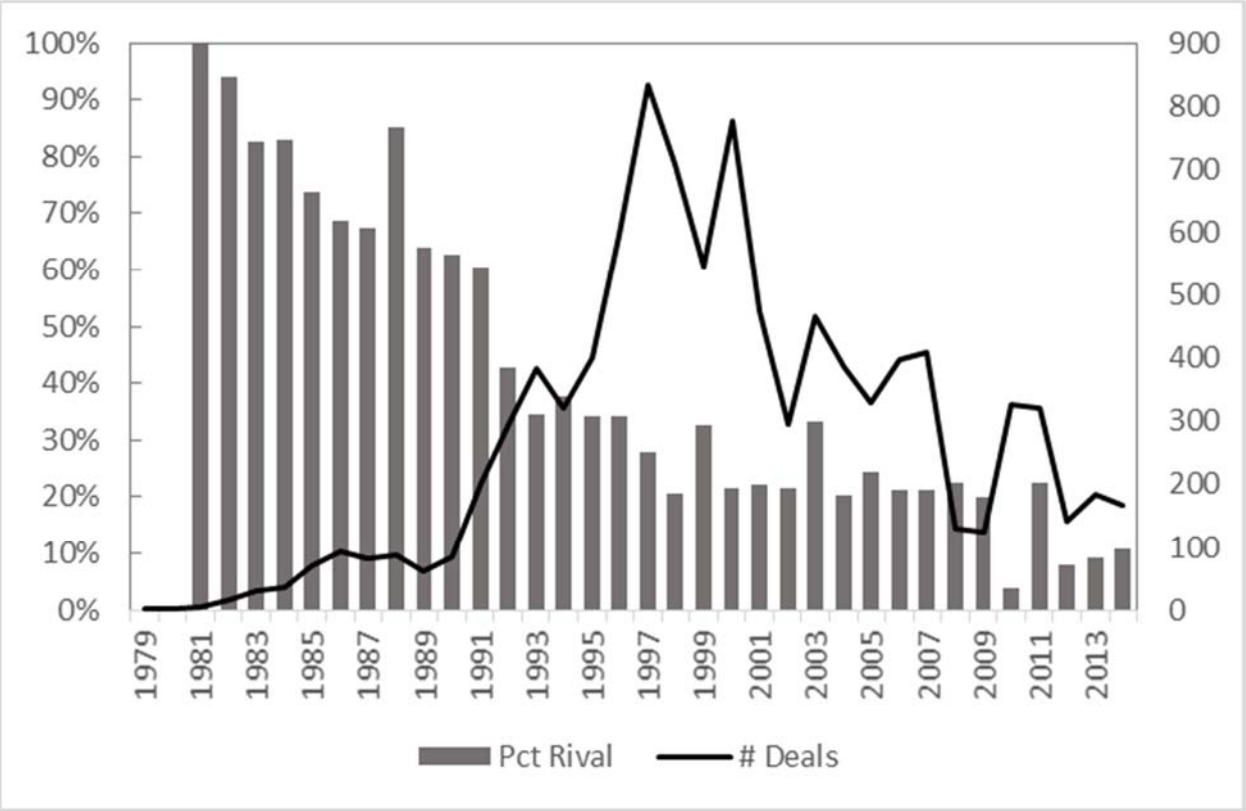

Figure 4: Regulatory Timeline

This figure details the timeline of regulatory events surrounding commercial banks' ability to underwrite securities. We track all major regulatory revisions pertaining to commercial banks' ability to participate in the securities business, which were prohibited by the Glass-Steagall Act of 1933. The first major expansion into debt underwriting occurred in 1989, and the Glass-Steagall Act of 1933 was finally repealed in 1999 following the passage of the Gramm-Leach-Bliley Act.

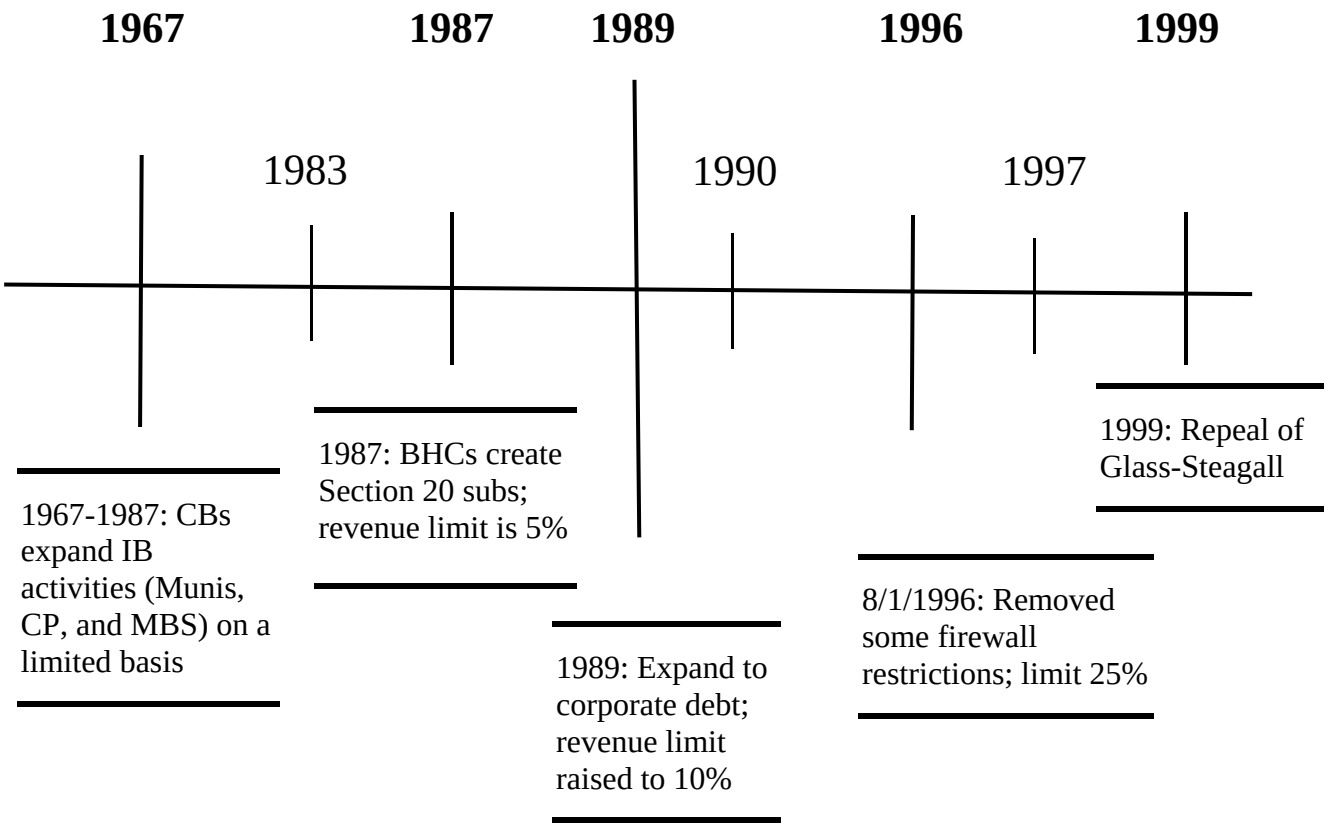

Table 1: Bank Sample

This table provides our sample of banks and their propensity to self-underwrite their debt issuances. *1st Lead* is the either the first date that a bank acted as a lead advisor on a debt offering to another firm (marking the date when it is considered capable of underwriting its own debt issuances) or the start of our sample (January 1, 1979) for investment banks that were underwriting debt beforehand. Other variables include the total number of debt issuances by each bank in our sample *(# deals*), as well as the percent of deals the banks use themselves as lead underwriter *(Lead*), the percent of deals the bank acts in a secondary role, such as a syndicate member *(Other*), and the percent of deals where the bank has no role in its own issuance (*No Role*). All banks are identified as commercial banks (CB) or investment banks (IB); the status column details the current state of the firm.

Firm Name	1st Lead	# Deals	Lead	Other	No Role	Type	Status
Alex Brown Inc.	1-Jan-79	1	100%	0.0%	0.0%	IB	Merged with Bankers Trust, 9-01-1997
Bank of America Merrill Lynch	16-Nov-98	472	78.6%	4.2%	17.2%	CB	Still exists
Bank of Boston	4-Aug-95	50	6.0%	0.0%	94.0%	CB	Acquired by Fleet Financial, 3-01-2000
Bank of New York	1-Sep-83	161	16.1%	0.6%	83.2%	CB	Still exists
Bank One Corp	20-Mar-97	136	30.9%	1.5%	67.6%	CB	Acquired by JPM Chase, 7-01-2004
BankAmerica Corp	1-Jun-81	157	7.6%	0.0%	92.4%	CB	Merged with Merrill Lynch to form BofA Merrill Lynch, 1-01-2009
Bankers Trust NY	29-Jun-81	173	24.9%	0.0%	75.1%	CB	Acquired by Deutsche Bank, 6-04-1999
BB&T Corp	25-May-00	31	77.4%	0.0%	22.6%	CB	Still exists
Bear Stearns	1-Jan-79	1039	98.9%	0.1%	1.0%	IB	Acquired by JPM Chase, 6-02-2008
Chase Manhattan Corp	15-Nov-82	198	37.9%	0.5%	61.6%	CB	Merged with JPM to form JPM Chase, 12-31-2000
Chemical Banking Corp	1-Oct-85	183	57.4%	0.0%	42.6%	CB	Acquired by Chase Manhattan, 3-31-1996
Citicorp	1-Jun-83	322	21.4%	0.0%	78.6%	CB	Merged with Travelers to form Citigroup, 10-09-1998
Citigroup Inc.	2-Nov-98	316	91.5%	3.2%	5.4%	CB	Still exists
Continental Bank	30-Nov-81	196	15.8%	0.0%	84.2%	CB	Acquired by NationsBank, 8-31-1994
Countrywide Financial	29-Apr-98	64	34.4%	0.0%	65.6%	CB	Acquired by Bank of America, 7-01-2008
Cowen Group	27-Apr-90	1	100%	0.0%	0.0%	IB	Still exists
Dean Witter	1-Jan-79	63	25.4%	0.0%	74.6%	IB	Acquired by Morgan Stanley, 5-31-1997
Donaldson Lufkin & Jenrette	1-Jan-79	70	100%	0.0%	0.0%	IB	Acquired by CSFB, 11-03-2000
EF Hutton Group	1-Jan-79	5	60.0%	40.0%	0.0%	IB	Merged with Shearson Lehman, 6-01-1988
Fifth Third Bancorp	1-Aug-00	23	30.4%	0.0%	69.6%	CB	Still exists
First Boston Inc.	1-Jan-79	3	100%	0.0%	0.0%	IB	Merged with Credit Suisse, 12-22-1988
First Chicago Corp	1-Jan-85	114	8.8%	0.0%	91.2%	CB	Acquired by Bank One, 10-02-1998
First Horizon National	25-Mar-98	1	100%	0.0%	0.0%	CB	Still exists
First Interstate Bancorp	1-Nov-84	34	5.9%	0.0%	94.1%	CB	Acquired by Wells Fargo, 4-01-1996
First Union Corp	2-Aug-95	57	73.7%	0.0%	26.3%	CB	Acquired by Wachovia, 9-01-2001
Fleet Boston Corp	1-Jul-84	109	3.7%	0.0%	96.3%	CB	Acquired by Bank of America, 4-01-2004

Table 1: Bank Sample (continued)

Firm Name	1st Lead	# Deals	Lead	Other	No Role	Type	Status
Goldman Sachs	1-Jan-79	669	89.2%	0.0%	10.8%	IB	Still exists
Hibernia Corp	2-Jul-02	1	0.0%	0.0%	100.0%	CB	Acquired by Capital One, 11-16-2005
Jefferies Group	16-Jun-83	15	93.3%	6.7%	0.0%	IB	Still exists
JP Morgan & Co	1-Aug-84	189	83.6%	0.0%	16.4%	IB	Merged with Chase to form JPM Chase, 12-31-2000
JPMorgan Chase & Co	25-Jan-01	419	74.0%	0.0%	26.0%	CB	Still exists
KeyCorp	22-Jul-99	49	20.4%	0.0%	79.6%	CB	Still exists
KKR Financial	2-Apr-08	2	0.0%	0.0%	100.0%	IB	Still exists
Legg Mason Inc.	1-Jan-79	8	12.5%	0.0%	87.5%	IB	Still exists
Lehman Brothers	1-Jan-79	522	94.1%	0.2%	5.7%	IB	Filed for bankruptcy; acquired by Barclays, 9-22-2008
Manufacturers Hanover Corp	9-Jul-82	42	2.4%	0.0%	97.6%	CB	Acquired by Chemical Bank, 1-01-1992
Mellon Bank Corp	1-Dec-86	18	0.0%	0.0%	100.0%	CB	Merged with Bank of New York, 7-02-2007
Merrill Lynch & Co	1-Jan-79	1797	96.7%	0.1%	3.2%	IB	Merged with BofA to form Bank of America Merrill Lynch, 1-01-2009
Morgan Stanley	1-Jan-79	849	95.3%	0.6%	4.1%	IB	Still exists
Moseley Hallgarten, Estabrook	1-Jan-79	2	50.0%	0.0%	50.0%	IB	Ceased to exist, 7-26-1988
NationsBank Corp	1-Jun-91	306	26.8%	0.0%	73.2%	CB	Merged with Bank of America to form BankAmerica, 9-30-1998
National City Corp	29-Jan-99	56	0.0%	0.0%	100.0%	CB	Acquired by PNC, 12-31-2008
NCNB Corp	13-Jan-84	19	5.3%	5.3%	89.5%	CB	Merged with C&S/Sovran to form NationsBank, 1-02-1992
Northern Trust Corp	7-Jun-89	33	0.0%	6.1%	93.9%	CB	Still exists
Paine Webber Inc.	1-Jan-79	54	90.7%	1.9%	7.4%	IB	Acquired by UBS, 11-03-2000
PNC Financial Services	19-Sep-02	4	25.0%	0.0%	75.0%	CB	Still exists
Raymond James	1-Jan-79	4	50.0%	0.0%	50.0%	IB	Still exists
Regions Financial Corp	22-Oct-91	10	0.0%	0.0%	100.0%	CB	Still exists
Salomon Brothers	1-Jan-79	212	98.6%	0.0%	1.4%	IB	Acquired by Travelers 11-28-1997
Shearson Lehman Brothers	30-May-80	4	75.0%	0.0%	25.0%	IB	Amex sells Shearson to Primerica, 7-31-1993; spinoff to form Lehman Bros., 5-31-1994
SouthTrust Corp	1-Sep-99	10	0.0%	0.0%	100.0%	CB	Acquired by Wachovia, 11-01-2004
Sovereign Bancorp	14-Dec-95	8	0.0%	0.0%	100.0%	CB	Acquired by Banco Santander SA, 1-30-2009
State Street Corp	9-Aug-82	10	0.0%	0.0%	100.0%	CB	Still exists
Sumitomo Bank of California	1-Aug-84	4	0.0%	0.0%	100.0%	CB	Acquired by Zions Bancorp, 10-01-1998
SunTrust Banks	11-Sep-96	78	33.3%	0.0%	66.7%	CB	Still exists
Charles Schwab Corp	3-Aug-93	43	4.7%	0.0%	95.3%	IB	Still exists
US Bancorp	20-Apr-99	72	25.0%	0.0%	75.0%	CB	Still exists
Wachovia Corp	15-Jun-99	55	90.9%	5.5%	3.6%	CB	Acquired by Wells Fargo, 12-31-2008
Wells Fargo & Co	21-May-82	195	35.4%	0.0%	64.6%	CB	Still exists
Zions Bancorp	25-Feb-99	22	59.1%	0.0%	40.9%	CB	Still exists

Table 2: Summary Statistics

This table presents summary statistics for our sample of 60 financial firms capable of self-underwriting that issued debt from 1979-2014. Panel A reports mean, median, and standard deviations for deal characteristics for all debt deals in the sample (9,760 deals). Mean summary statistics are further partitioned between deals pre-and post-1999 with a reported p-value for the difference in deals between the two periods. Coupon, offer yield to maturity, and gross spread are available only for a subset of debt deals. Panel B reports issuer characteristics based on a bank-year level. All financial data are for the fiscal year prior to the deal. Variable definitions are detailed in Appendix B. p-values report the significance of the difference between sample means of the two sub-samples using a difference of means test.

	Mean	Median	Std. Dev	1979-1999	2000-2014	p-value
Panel A: Deal Characteristics						
Use Rival	28.74%	0%	45.26%	37.25%	20.38%	(0.00)
International Deal	15.39%	0%	36.09%	8.76%	21.90%	(0.00)
Private Deal	6.11%	0%	23.95%	11.55%	0.75%	(0.00)
Deal Size ($M)	285.70	93.31	521.83	101.22	467.03	(0.00)
Relative Deal Size	1.65%	0.56%	3.64%	2.20%	1.11%	(0.00)
Gross Spread	0.64%	0.35%	0.76%	0.59%	0.67%	(0.00)
Maturity (years)	5.70	4.00	5.74	4.87	6.51	(0.00)
Coupon	5.71%	5.88%	2.46%	6.80%	4.77%	(0.00)
High Debt Rating	35.27%	0%	47.78%	24.51%	45.84%	(0.00)
Mid Debt Rating	47.30%	0%	49.93%	52.77%	41.91%	(0.00)
Low Debt Rating	8.03%	0%	27.18%	10.15%	5.95%	(0.00)
IB %	56.89%	100%	49.53%	55.73%	58.03%	(0.02)
Top 10 %	63.51%	100%	48.14%	53.35%	73.51%	(0.00)
Panel B: Issuer Characteristics						
Market Value of Equity$_{t-1}$ ($M)	28,037	9,533	44,772	8,158	50,070	(0.00)
Leverage$_{t-1}$	34.67%	25.51%	23.43%	37.59%	31.43%	(0.00)
ROA$_{t-1}$	3.22%	2.82%	1.94%	3.33%	3.10%	(0.15)
Market-to-Book$_{t-1}$	1.68	1.47	1.02	1.48	1.90	(0.00)
Issuances Per Year	16.18	6.00	26.66	15.26	17.21	(0.37)
Stock Volatility$_{t-1}$	3.28%	2.20%	4.81%	2.57%	3.96%	(0.00)
Proprietary Trading	78.34%	100%	41.23%	73.54%	83.22%	(0.00)
Derivative Trading	84.58%	100%	36.15%	83.51%	85.66%	(0.47)
Asset Management	81.28%	100%	39.04%	75.60%	87.06%	(0.00)

Table 3: Effect of Deregulation

This table shows the effect of deregulation on the debt issuing behavior of commercial banks using all debt issuances by public firms (financials and non-financials) based on firm-year observations. The two regulatory changes occur on August 1, 1996 (Models 1, 3, 5, and 7) and in1999 (Models 2, 4, 6, and 8). The impact of deregulation is measured on commercial bank leverage (Columns 1 and 2), frequency of issues (Columns 3 and 4), and size of their issues (total proceeds, Columns 5 and 6; average deal size, Columns 7 and 8) relative to other firms. To examine the impact on commercial banks versus all other financial and non-financial firms, interactive terms are included for the largest commercial banks (top quartile based on assets) with each regulatory change (Large CB * pre 8/1/96, Large CB * post 8/1/96, Large CB * pre 1999, Large CB * post 1999). The final row in the table provides output from a t-test on the difference between pre-deregulation and post-deregulation coefficients. All regressions include year and issuer fixed effects. Variable definitions are detailed in Appendix B. p-values are in parentheses.

	Leverage		# Deals		Total Proceeds		Average Deal Size	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	0.366	0.406	0.084	0.125	3.818	3.897	3.734	3.772
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Large CB * pre 8/1/96	-0.057		0.987		2.288		1.300	
	(0.00)		(0.00)		(0.00)		(0.00)	
Large CB * post 8/1/96	0.057		2.107		4.073		1.965	
	(0.01)		(0.00)		(0.00)		(0.00)	
Large CB * pre 1999		-0.053		1.073		2.374		1.301
		(0.00)		(0.00)		(0.00)		(0.00)
Large CB * post 1999		0.091		2.257		4.499		2.242
		(0.00)		(0.00)		(0.00)		(0.00)
Year and Issuer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	15,356	15,356	22,824	22,824	22,824	22,824	22,824	22,824
Adjusted r^2	0.204	0.204	0.088	0.088	0.134	0.134	0.130	0.130
H_0: Pre-Deregulation	23.93	26.67	32.83	36.68	51.60	73.12	11.14	14.97
= Post-Deregulation	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Table 4: Market and Deal Statistics

This table reports mean and median statistics for all debt deals separated by whether the bank is ranked in the Top 10 of the SDC League Tables in a given year. Panel A details statistics by bank-year observations (177 Top 10 and 430 non-Top 10), while Panel B details statistics for the subset of issuances where a rival bank is hired (428 Top 10 and 2,377 non-Top 10). Panel C presents comparisons of deal characteristics between the issuing bank and those of externally hired advisors, while Panel D provides statistics based on whether the issuer is a Top 10 or non-Top 10 Bank and a rival is hired. Variable definitions are detailed in Appendix B. p-values report the significance of the difference between sample means using a difference of means test. Wilcoxon rank p-values are reported for medians.

	Mean			Median		
	Issuer Ranked Top 10	Issuer Ranked Non-Top 10	p-value	Issuer Ranked Top 10	Issuer Ranked Non-Top 10	p-value
Panel A: Debt Issuance by Bank Year						
Use Rival	10.04%	71.95%	(0.00)	0%	100%	(0.00)
Debt Market Share$_{t-1}$	4.82%	0.17%	(0.00)	3.90%	0.00%	(0.00)
Financial Market Share$_{t-1}$	4.60%	0.21%	(0.00)	3.30%	0.00%	(0.00)
Financial Debt Ranking$_{t-1}$	5.12	32.72	(0.00)	4.00	27.00	(0.00)
Self-Underwritten %	38.27%	21.82%	(0.00)	34.74%	0.00%	(0.00)
Financial Mkt Share %	47.66%	32.48%	(0.00)	47.32%	0.20%	(0.00)
Panel B: Debt Issuance Statistics When Rival is Hired						
Advisor Debt Rank	23.28	7.25	(0.00)	15.00	4.00	(0.00)
Advisor Top 10 Rank	32.48%	64.49%	(0.00)	0%	100%	(0.00)
Number of Rivals	13.00	10.00	(0.38)	13.00	9.00	(0.68)
Panel C: All Debt Issuances When Rival is Hired						
	Advisor	Issuer	p-value	Advisor	Issuer	p-value
Financial Proceeds$_{t-1}$ ($M)	5,868	3,861	(0.00)	2,728	60	(0.00)
Financial Market Share$_{t-1}$	1.91%	0.91%	(0.00)	1.10%	0.00%	(0.00)
# Financial Issues$_{t-1}$	44.02	14.40	(0.00)	29.00	1.00	(0.00)
Financial Debt Ranking$_{t-1}$	9.68	27.02	(0.00)	5.00	18.00	(0.00)
International Expertise	5.79%	1.11%	(0.00)	3.37%	0.00%	(0.00)
Private Expertise	5.89%	2.33%	(0.00)	5.02%	1.22%	(0.00)
Maturity Expertise	7.57%	1.52%	(0.00)	7.33%	0.18%	(0.00)
Deals Advised, #$_{t-6m}$	65.33	16.04	(0.00)	60.00	7.00	(0.00)
Deals Advised, $$_{t-6m}$	19,623	4,819	(0.00)	13,399	445	(0.00)
Advised Deal Size	273.601	264.593	(0.64)	218	114	(0.00)
Top 10 Rank	59.60%	15.26%	(0.00)	100%	0%	(0.00)

Panel D: Top 10 versus Non-Top 10 Advisors When Rival is Hired				
	Overall	Top 10	Non-Top 10	p-value
Advisor Ranked Higher	78.65%	19.39%	89.31%	(0.00)
Advisor Ranked Lower	21.36%	80.61%	10.60%	(0.00)
Advisor > Issuer International	60.00%	24.30%	66.43%	(0.00)
Advisor > Issuer Private	58.72%	21.50%	65.42%	(0.00)
Advisor > Issuer Maturity	65.05%	22.90%	72.82%	(0.00)

Table 5: Probability of Hiring a Rival

This table presents estimations from a linear probability model (LPM) on whether a firm hires a rival for a given debt issuance (dependent variable is Use Rival). Deal characteristics in each regression include: indicators for International Deal and Private Deal, Relative Deal Size, and log(Maturity). To provide a control for the reputation of the issuer, we also include the issuer's prior-year aggregate debt market share (Debt Market $Share_{t-1}$). Columns 1 and 2 are calculated using all deals in the sample. Columns 3 and 4 are limited to deals by Top 10 ranked issuers. Columns 5 and 6 report deals by non-Top 10 ranked issuers. Rankings are identified in each year from the SDC League Tables. All regressions include year and issuer fixed effects. Variable definitions are detailed in Appendix B. p-values are listed in parentheses.

	All Banks		Issuer Ranked Top 10		Issuer Ranked Non-Top 10	
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	0.446	0.466	0.025	0.064	0.873	0.990
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
International Deal	0.070	0.070	0.060	0.058	0.068	0.068
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)
Private Deal	-0.143	-0.142	-0.032	-0.017	-0.205	-0.194
	(0.00)	(0.00)	(0.25)	(0.53)	(0.00)	(0.00)
Relative Deal Size	-0.500	-0.505	-0.828	-0.850	-0.415	-0.424
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)
Log(Maturity)	0.024	0.024	0.024	0.024	0.017	0.019
	(0.00)	(0.00)	(0.00)	(0.00)	(0.03)	(0.02)
Debt Market		-0.005		-0.013		-0.089
$Share_{t-1}$		(0.05)		(0.00)		(0.00)
Post-1999		-0.405		0.079		-1.093
		(0.00)		(0.01)		(0.00)
Year and Issuer FE	Yes	Yes	Yes	Yes	Yes	Yes
N	9,760	9,760	6,199	6,199	3,561	3,561
Adjusted r^2	0.573	0.573	0.220	0.224	0.400	0.402

Table 6: Probability of Hiring a Rival – Expertise and Information

This table presents estimations from a linear probability model (LPM) on whether a firm hires a rival for a given debt issuance while controlling for different types of expertise and information. Columns 1-3 include all deals in the sample. Columns 4-6 are limited to only those deals issued by Top 10 ranked banks while Columns 7-9 are limited to non-Top 10 bank issued debt deals. Rankings are identified each year from the SDC League Tables. Panel A details measures of expertise (Issuer International, Private and Maturity Expertise) while Panel B provides measures of certification (Stock Volatility$_{t-1}$ and High or Low Debt Rating). Panel C outlines measures of relationship (Rival Use$_{t-6m}$ or Advisor Use$_{t-6m}$), while Panel D details measures of bank proprietary information (Proprietary Trading and Derivatives Trading). Control variables are the same as those described in Table 5. All regressions include year and issuer fixed effects. Variable definitions are detailed in Appendix B. p-values are listed in parentheses.

	All Banks			Issuer Ranked Top 10			Issuer Ranked Non-Top 10		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: Expertise									
Issuer International Expertise	-0.238			-0.185			-3.857		
	(0.00)			(0.02)			(0.04)		
Issuer Private Expertise		-0.921			-1.705			-0.311	
		(0.00)			(0.00)			(0.78)	
Issuer Maturity Expertise			-1.027			-1.086			-0.743
			(0.00)			(0.00)			(0.57)
Year and Issuer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	8,502	8,499	8,502	5,812	5,812	5,812	2,690	2,687	2,690
Adjusted r^2	0.598	0.599	0.600	0.233	0.252	0.239	0.410	0.409	0.410
Panel B: Certification									
Stock Volatility$_{t-1}$	0.392			0.469			-0.237		
	(0.00)			(0.00)			(0.41)		
High Debt Rating		-0.051			-0.097			0.050	
		(0.00)			(0.00)			(0.02)	
Low Debt Rating		0.069			0.087			-0.057	
		(0.00)			(0.00)			(0.08)	
Year and Issuer FE	Yes	Yes		Yes	Yes		Yes	Yes	
N	9,372	9,760		6,013	6,199		3,359	3,561	
Adjusted r^2	0.576	0.575		0.239	0.243		0.405	0.403	
Panel C: Relationship									
Rival Use$_{t-6m}$	0.232			0.096			0.124		
	(0.00)			(0.00)			(0.00)		
Advisor Use$_{t-6m}$		-0.503			-0.574			-0.325	
		(0.00)			(0.00)			(0.00)	
Year and Issuer FE	Yes	Yes		Yes	Yes		Yes	Yes	
N	9,760	9,599		6,199	6,196		3,561	3,403	
Adjusted r^2	0.586	0.665		0.227	0.582		0.407	0.440	
Panel D: Information									
Proprietary Trading	-0.223			-0.185			-0.685		
	(0.00)			(0.00)			(0.00)		
Derivatives Trading		-0.187			-0.185			-0.646	
		(0.00)			(0.00)			(0.00)	
Year and Issuer FE	Yes	Yes		Yes	Yes		Yes	Yes	
N	9,515	9,515		6,193	6,193		3,322	3,322	
Adjusted r^2	0.565	0.564		0.224	0.224		0.415	0.411	

Table 7: Probability of Hiring a Rival – Bank-Specific

This table presents estimations from a linear probability model (LPM) on whether a firm hires a rival for a given debt issuance while controlling for bank-specific characteristics. Panel A details two measures of the distributional network: an indicator for whether the bank has Asset Management Arm and the issuing bank's average syndicate size on debt deals in which it was the lead, Syndicate $\text{Size}_{t\text{-}6m}$. Panel B explores an issuer's capacity to underwrite its own debt by measuring the percentage of financial deals it has underwritten in the prior six months relative to the total debt underwritten by the same bank (Financial Debt $\text{Capacity}_{t\text{-}6m}$) as well as an indicator for whether the issuing bank's ranking is lower than in the prior year ($\text{Rank}_t < \text{Rank}_{t\text{-}1}$). In each panel, Columns 1 and 2 include all deals in the sample, Columns 3 and 4 are limited to only those deals issued by Top 10 ranked banks, while Columns 5 and 6 are limited to Non-Top 10 bank issued debt deals. Rankings are identified each year from the SDC League Tables. Control variables are the same as those described in Table 5. All regressions include year and issuer fixed effects. Variable definitions are detailed in Appendix B. p-values are listed in parentheses.

	All Banks		Issuer Ranked Top 10		Issuer Ranked Non-Top 10	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Distributional Networks						
Asset Management Arm	-0.188		-0.185		-0.717	
	(0.00)		(0.00)		(0.00)	
Syndicate $\text{Size}_{t\text{-}6m}$		-0.004		-0.007		0.002
		(0.04)		(0.04)		(0.42)
Year and Issuer FE	Yes	Yes	Yes	Yes	Yes	Yes
N	9,515	9,760	6,193	6,199	3,322	3,561
Adjusted r^2	0.564	0.573	0.225	0.225	0.412	0.402
Panel B: Capacity and Reputation Decline						
Financial Debt $\text{Capacity}_{t\text{-}6m}$	-0.053		0.065		-0.015	
	(0.01)		(0.00)		(0.73)	
$\text{Rank}_t < \text{Rank}_{t\text{-}1}$		0.028		0.021		0.089
		(0.00)		(0.00)		(0.00)
Year and Issuer FE	Yes	Yes	Yes	Yes	Yes	Yes
N	9,760	9,760	6,199	6,199	3,561	3,561
Adjusted r^2	0.573	0.574	0.225	0.225	0.402	0.406

Table 8: Probability of Hiring a Rival – League Table Adjustments

This table presents estimations from a linear probability model (LPM) on whether a firm hires a rival for a given debt issuance while controlling for the influence of self-underwriting on threshold banks. The measure of influence is whether the self-underwriting proceeds exceed the difference in total proceeds underwritten between a bank and the next lowest ranked bank (Self > Difference). Column 1 includes all deals in the sample. Columns 2, 3, and 4 are limited to only those deals issued by "threshold" banks ranked 5 or 6 (Top 5); 5, 6, 10, or 11 (Top 5 or Top 10); 5, 6, 10, 11 20, or 21(Top 5, Top 10, or Top 20), respectively. Rankings are identified each year from the SDC League Tables. Control variables are the same as those described in Table 5. All regressions include year and issuer fixed effects. Variable definitions are detailed in Appendix B. p-values are listed in parentheses.

	All Deals	Rank 5 or 6	Rank 5, 6, 10, or 11	Rank 5, 6, 10, 11, 20, or 21
	(1)	(2)	(3)	(4)
Intercept	0.466	0.130	0.129	0.106
	(0.00)	(0.10)	(0.00)	(0.01)
Self > Difference	-0.001	-0.105	-0.072	-0.129
	(0.93)	(0.03)	(0.08)	(0.00)
International Deal	0.070	0.073	0.092	0.108
	(0.00)	(0.00)	(0.00)	(0.00)
Private Deal	-0.142	0.029	-0.086	-0.182
	(0.00)	(0.75)	(0.28)	(0.01)
Relative Deal Size	-0.505	-0.773	-0.977	-0.576
	(0.00)	(0.00)	(0.00)	(0.01)
Log(Maturity)	0.024	0.005	0.014	0.016
	(0.00)	(0.52)	(0.07)	(0.04)
Debt Market	-0.005	-0.045	-0.041	-0.010
$Share_{t-1}$ (Issuer)	(0.05)	(0.17)	(0.01)	(0.50)
Post-1999	-0.404	0.301	0.259	0.074
	(0.00)	(0.14)	(0.02)	(0.49)
Year and Issuer FE	Yes	Yes	Yes	Yes
N	9,760	1,339	1,762	1,914
Adjusted r^2	0.573	0.349	0.563	0.626

Table 9: Probability of Hiring a Rival – Combined Models

This table presents estimations on whether a firm hires a rival for a given debt issuance while controlling for expertise, information, and bank-specific motivations jointly. Columns 1, 3, and 5 present estimates from a linear probability model (LPM) and Columns 2, 4, and 6 provide odds ratios computed from a fixed effects logistic regression. Columns 1 and 2 include all deals, while Columns 3 and 4 (5 and 6) are limited to deals issued by Top 10 banks (non-Top 10 banks). Control variables are those described in Table 5. All regressions include year and issuer fixed effects. Variable definitions are detailed in Appendix B. p-values are listed in parentheses.

	All Banks		Issuer Ranked Top 10		Issuer Ranked Non-Top 10	
	Estimates	Odds Ratios	Estimates	Odds Ratios	Estimates	Odds Ratios
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	0.841		0.176		1.489	
	(0.00)		(0.00)		(0.00)	
Issuer International Expertise	-0.513	0.000	-0.544	0.000	-4.875	0.000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)
Stock Volatility$_{t-1}$	0.269	0.317	0.335	9.144	-0.452	0.011
	(0.00)	(0.34)	(0.00)	(0.06)	(0.42)	(0.12)
Rival Use$_{t-6m}$	0.211	4.695	0.090	1.564	0.097	2.733
	(0.00)	(0.00)	(0.00)	(0.16)	(0.00)	(0.00)
Proprietary Trading	-0.221	0.000	-0.159	0.141	-0.726	0.000
	(0.00)	(0.99)	(0.00)	(0.06)	(0.00)	(0.99)
Financial Debt Capacity$_{t-6m}$	0.009	1.252	0.096	4.283	-0.049	1.119
	(0.66)	(0.45)	(0.00)	(0.00)	(0.29)	(0.82)
Rank$_t$ < Rank$_{t-1}$	0.049	1.522	0.032	1.286	0.110	1.976
	(0.00)	(0.00)	(0.00)	(0.07)	(0.00)	(0.00)
International Deal	0.086	2.897	0.069	3.363	0.148	3.836
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Relative Deal Size	-0.767	0.929	-1.001	0.357	-0.513	74.540
	(0.00)	(0.00)	(0.00)	(0.00)	(0.13)	(0.06)
Log(Maturity)	0.017	1.292	0.020	1.551	0.005	1.022
	(0.00)	(0.00)	(0.00)	(0.00)	(0.57)	(0.75)
Post-1999	-0.611	0.472	-0.033	0.849	-0.655	0.186
	(0.00)	(0.00)	(0.21)	(0.45)	(0.02)	(0.00)
Year and Issuer FE	Yes		Yes		Yes	
N	8,240		5,646		2,594	
Adjusted r^2	0.611		0.245		0.432	

Table 10: Gross Spreads

This table provides Tobit regressions for gross spreads as a percentage of principal (Gross Spread). The main independent variable is an indicator equal to one if the issuing bank hires a rival for a given deal, zero otherwise (Use Rival). Columns 1 and 2 include all deals, while Columns 3 and 4 (5 and 6) are limited to deals by Top 10 (non-Top 10) ranked issuers. In odd-numbered columns (1, 3, and 5), a standard Tobit model is examined. In even-numbered columns (2, 4, and 6), we correct for selection bias that may occur in the decision to hire a rival and its effect on spreads. A two-stage Heckman correction model is used to first estimate whether a rival is used for a specific deal based on model 1 in Table 9 augmented with prior year return (Stock Return_{t-1}) and issuer return on assets (ROA_{t-1}). The inverse mills ratio is computed from this specification and then used in the second stage regression reported in Models 2, 4, and 6. All variable definitions are detailed in Appendix B. p-values are listed in parentheses.

	All Banks		Issuer Ranked Top 10		Issuer Ranked Non-Top 10	
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	4.271	4.837	-0.511	0.015	2.645	3.702
	(0.00)	(0.00)	(0.10)	(0.96)	(0.00)	(0.00)
Use Rival (0/1)	0.211		0.398		0.051	
	(0.00)		(0.00)		(0.16)	
Inverse Mills Ratio		-0.081		-0.068		-0.120
		(0.00)		(0.10)		(0.16)
International Deal	-0.019	-0.039	-0.038	-0.060	-0.030	-0.037
	(0.46)	(0.21)	(0.25)	(0.16)	(0.43)	(0.52)
Private Deal	0.511		0.699		0.294	
	(0.00)		(0.02)		(0.00)	
Relative Deal Size	-3.563	-3.062	-3.820	-3.590	-1.892	-2.110
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
Log(Maturity)	0.407	0.382	0.419	0.409	0.341	0.319
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Stock Volatility_{t-1}	-1.034	-0.349	-1.198	-0.451	0.646	0.980
	(0.01)	(0.44)	(0.02)	(0.40)	(0.06)	(0.22)
Proprietary Trading	0.097	-0.038	0.248	-0.007	0.268	0.428
	(0.36)	(0.73)	(0.09)	(0.96)	(0.06)	(0.00)
Financial Debt Capacity_{t-6m}	0.141	0.247	0.284	0.392	-0.073	-0.121
	(0.01)	(0.00)	(0.00)	(0.00)	(0.26)	(0.16)
$\text{Rank}_t < \text{Rank}_{t-1}$	0.064	0.100	0.098	0.162	-0.038	-0.054
	(0.00)	(0.00)	(0.00)	(0.00)	(0.22)	(0.15)
Stock Return_{t-1}	0.067	0.059	0.096	0.065	0.025	0.025
	(0.02)	(0.06)	(0.03)	(0.17)	(0.47)	(0.56)
ROA_{t-1}	-0.041	-0.054	-0.019	-0.050	-0.022	-0.036
	(0.00)	(0.00)	(0.35)	(0.01)	(0.23)	(0.20)
Post-1999	-3.771	-3.661	-0.145	-0.231	-2.708	-2.888
	(0.00)	(0.00)	(0.24)	(0.07)	(0.00)	(0.00)
Year and Issuer FE	Yes	Yes	Yes	Yes	Yes	Yes
N	3,715	3,169	2,344	2,127	1,371	1,042
Adjusted r^2	0.510	0.481	0.564	0.525	0.372	0.349