

**Universal-Bank Underwriting and Conflicts of Interest:
Evidence from German Initial Public Offerings**

Peter G. Klein

Department of Economics
Terry College of Business
University of Georgia
Athens, GA 30602-6254
706-542-3697
pklein@terry.uga.edu

Kathrin Zoeller

Am-Re Consultants, Inc.
555 College Road East
Princeton, NJ 08543
609-243-4479
kzoeller@amre.com

This version: May 11, 2001

Abstract: This paper investigates conflicts of interest associated with relationship banking. Using a sample of 306 German initial public offerings (IPOs), we ask if universal-bank-underwritten IPOs perform differently from IPOs underwritten by specialized investment banks. We find that universal-bank affiliation is correlated with higher first-day returns (underpricing) but uncorrelated with long-term performance. This suggests that underpricing compensates for potential conflicts of interest. We also find that preexisting bank relationships, rather than issuer characteristics, appear to determine the choice of underwriter.

JEL codes: G32, G34, G21, G24

Keywords: universal banking, relationship banking, initial public offering, underpricing

Preliminary manuscript; please do not cite or quote. We thank Charles DeLorme, David Kamerschen, Knox Lovell, Timothy Park, Charles Brophy, and participants at the CEMAF/ISCTE 6th Anniversary Finance Meeting for helpful comments and conversations.

Universal-Bank Underwriting and Conflicts of Interest: Evidence from German Initial Public Offerings

1. Introduction

Recent consolidation in the financial-services industry has led to renewed interest in universal banks, financial intermediaries that combine commercial and investment banking in a single institution. In principle, universal banks can exploit economies of scope and can benefit from the creation of internal capital markets. By closely monitoring their portfolio companies, universal banks can also improve the quality of corporate governance (Roe, 1990). However, critics associate universal or “relationship” banking with excessive risk, moral hazard created by the expectation of government bailouts, monetary instability, the concentration of political and economic power, a lack of consumer choice and availability of credit, and other problems (Francke and Hudson, 1984; Benston, 1994). While several of these concerns have more to do with bank size than bank scope, financial conglomeration nonetheless raises some unique concerns.

This paper examines the double role of lender and underwriter by comparing universal-bank-underwritten initial public offerings (IPOs) with IPOs underwritten by specialized banks. To investigate potential conflicts of interest between underwriters, issuers, and investors, we relate initial returns (underpricing) and secondary-market returns to the type of underwriter for 306 recent German IPOs. Because German banks have traditionally been allowed to perform a variety of financial services, the German banking system is an excellent setting for investigating these conflicts. Moreover, despite the common perception that large universal banks dominate the German economy, specialized financial institutions are also active in the German market. Because the German stock market was fairly illiquid until a few years ago, empirical studies using stock-market data have only recently become feasible.

Universal-bank underwriting is unique in several ways. As both underwriter and creditor, a universal bank might try to promote a low-quality security to raise cash for a borrower, transferring its loan risk to uninformed investors. The universal bank might also underprice to promote

its other product lines or to favor its investing depositors and asset-management subsidiaries. At the same time, investors might perceive universal banks as certifiers of high-quality issues, which would lead to higher initial prices. However, if investors perceive universal banks as underwriters with conflicts of interest, then lower initial prices could be compensation to investors for the potential hazards associated with the underwriter's preexisting lending relationships.

To see if these considerations have a systematic impact on the underwriting process and pricing, we investigate the relationship between underpricing, issuer characteristics, secondary-market performance of the stock, and underwriter type. If investors are naive, we expect universal-bank-underwritten securities to be associated with normal underpricing and below-average long-term performance. If investors are rational and worried about conflicts of interest, we expect to find lower subscription prices (higher underpricing) and neutral long-term performance. If investors perceive universal banks to be certifiers of high quality, we expect higher subscription prices (lower underpricing) and neutral or superior long-term stock performance. If universal banks underprice to promote their other services, we expect low subscription prices and normal or better long-term performance.

We find that universal-bank underwriting is correlated with higher first-day returns (underpricing), but uncorrelated with long-term performance. This suggests that underpricing compensates for potential conflicts of interest. We then ask why issuers choose underwriters who raise less cash in the initial offering and find that preexisting bank relationships, rather than issuer characteristics, appear to determine the choice of underwriter. We conclude that switching costs outweigh the cost of leaving money on the table. Section 2 explores the theoretical foundations of IPO pricing and the role of universal banks. Section 3 describes our empirical approach. Section 4 presents the results, and section 5 concludes.

2. Underpricing and universal banking

Ibbotson and Jaffe (1975) first rigorously documented the high initial returns (underpricing) of U.S. IPOs. Studies documenting underpricing exist today for just about any country that has a stock market, and the evidence suggests that underpricing is deliberate (Hunt-McCool et al., 1996). Various theories have been developed to explain persistent, deliberate underpricing. Several early papers advanced an equilibrium signaling explanation. In these models, high-quality issuers are willing to leave money on the table to signal their quality to investors (Ibbotson and Jaffe, 1975; Allen and Faulhaber, 1989; Grinblatt and Hwang, 1989; Welch, 1989). High-quality issuers are willing to underprice because they can raise additional capital in subsequent offerings; low-quality issuers must maximize their receipts from the initial offering. In a separating equilibrium, only high-quality issuers will underprice.¹ One problem with the signaling hypothesis is that issuers with lower underpricing perform significantly better in the long run and return to the issue market less frequently (Michaely and Shaw, 1994). It is also unclear why high-quality issuers cannot signal their attributes in a less costly fashion, such as affiliating with a prestigious underwriter.

More recent explanations have focused on informational cascades, legal liability, and compensation for investors. Underpricing can initiate a cascade of buying activity, which represents free publicity for the issuer and the underwriter. A low initial price also increases the number of applications for IPO stocks, allowing the underwriter and issuer to choose the parties they allot shares to (Shiller 1990; Welch, 1992; Booth and Chua, 1996; Fulghieri and Spiegel, 1993). The evidence on the benefits for the underwriter is mixed. It is unclear if issuers are more likely to return to the underwriter if the IPO is underpriced (James, 1992; Krigman, Shaw, and Womack, 1999).

¹ Moreover, underpriced stocks earn particularly high trading commission because the volume of trades is greater and investors accept higher fees if they are awarded IPO stocks. Brokers and analysts therefore have a greater incentive to scrutinize the stock. Only high-quality stocks can afford to attract that kind of attention.

While it is unclear whether underpricing enhances the market value of the underwriter, practitioners often argue that investment bankers underprice IPOs to reduce their exposure to shareholder litigation (Tinic, 1988; Hughes and Thakor, 1992; Drake and Vetsuypens, 1993; Nanda and Yun, 1997). If an issue is difficult to price and associated with observable risks, the investment bank would be expected to detect those in its due-diligence investigation, state them clearly in the prospectus, and price appropriately. The investment bank might err on the side of caution to avoid overpricing lawsuits from shareholders. This kind of litigation is unusual in Germany, however.

Other explanations focus on underwriter compensation. Underwriters typically receive a percentage of the capital raised in the IPO as compensation and should thus want to minimize underpricing. Moreover, if they price the issue too low, the issuer might choose a different investment bank for future transactions. However, offering securities at a discount may allow the bank to save marketing costs, reap higher commissions from heavier secondary market trading, or reduce exposure to litigation (Baron, 1982; Loughran and Ritter, 1999; Beatty and Welch, 1996). Issuers may permit underwriters to reap these benefits as compensation for the judicious use of the underwriter's private information about the issuer.

High initial returns could also motivate uninformed investors to participate in bidding against better-informed investors. These returns could also be a reward to informed investors for revealing information during the bookbuilding process. Both explanations imply a positive relationship between underpricing and ex-ante uncertainty (Rock, 1986; Beatty and Ritter, 1986; Benveniste and Spindt, 1989; Michaely and Shaw, 1994). More generally, discounted subscription prices can be interpreted as up-front compensation to investors for bearing uncertainty. Beatty and Ritter (1986) provide evidence that underpricing is positively related to ex-ante issuer risk. Muscarella and Vetsuypens (1989) investigate reverse LBOs, finding that firms that were once publicly owned, then taken private, and subsequently returned to public ownership are significantly less underpriced than typical IPOs, presumably because the issuers are relatively well known.

However, Carter and Manaster (1990) and others suggest that low-risk issuers choose prestigious underwriters to signal their low risk instead of discounting the value of the firm. Carter, Dark, and Singh (1998) find that the underperformance of IPOs relative to the market over a three-year holding period is less severe for IPOs handled by a more prestigious underwriter. The same paper, as well as Schmidt et al. (1988) and Michaely and Shaw (1994), find that issuers with high-reputation underwriters are associated with lower underpricing. Beatty and Welch (1996) also find that high-prestige underwriters in the United States were associated with lower underpricing from the 1980s to the 1990s, but the pattern reverses for the early 1990s. The reversal could be driven by the emergence of younger issuing firms, consistent with the risk-compensation theory. Jain and Kini (1999) find that higher investment-banker prestige also increases the firm's survival probability. Krigman, Shaw, and Womack (1999) document that additional analyst coverage provided by the investment bank, and higher bank reputation, are determinants of issuer choice of underwriter. Underwriter reputation can thus substitute for underpricing as a means of reassuring investors.

How does universal-bank underwriting differ from underwriting by specialized investment banks? Because relationships between universal banks and firms often go back many years, possibly from the firm's first bank loan, universal banks may have information useful for underwriting that specialized underwriters do not possess. Concerns that universal banks might use such information opportunistically motivated the separation of commercial banking and securities underwriting established by the Glass-Steagall Act (Roe, 1990, 1998; Puri, 1994). A universal bank with an existing lending relationship to a firm going public might be inclined to underwrite and promote a low-quality issue to transfer its loan risk to uninformed investors. However, it is unclear why the bank prefers this arrangement to restructuring loan repayments or why the firm participates in this scheme because the bank stands to lose bondholders or stockholders (Benston, 1994). Moreover, if universal banks were suspected of exploiting such conflicts of interest, rational investors could abstain from buying universal bank underwritten issues or require an appropriate risk premium.

The universal bank might also give bank loans at favorable rates to third-party investors in the understanding that they will buy securities in the IPO. This form of cross-subsidization between the departments of the bank can increase the risk of the bank and harm depositors. The bank might also be inclined to make imprudent loans to issuers to avoid the impression that it performed insufficient due-diligence investigations before the IPO and to avoid litigation from shareholders. Still, it is unclear why the market would not resolve these conflicts by tying executive compensation to the profit of the bank, by imposing internal control mechanisms, third-party monitoring mechanisms, or self-regulating institutions. Moreover, competition among issuers and the bank's desire to maintain a reputation of trustworthiness (particularly in the face of disclosure requirements) are likely to constrain such opportunistic behavior (Minsky, 1996).

Several sequential models explore the reputation effects that mitigate the conflicts of interest present in any agency conflict, and especially in banking (John and Nachman, 1985; Diamond, 1989). Bank reputation evolves endogenously and provides an incentive to behave in the best interest of investors and issuers. Chemmanur and Fulghieri (1994a, 1994b) demonstrate that investment-bank credibility depends on their equity-marketing history. They also demonstrate that commercial banks' desire to acquire and maintain a reputation for reliability provides an incentive to invest heavily in client evaluations.

Ultimately, the bank will set the prices needed to sell to investors. Investors might be more inclined to buy universal-bank-underwritten securities if the bank uses information acquired from existing relationships to certify securities issues and to resolve informationally induced standoffs between insiders and outside investors (Akerlof, 1970; Diamond, 1984). This implies lower-than-average underpricing. On the other hand, investors might be less inclined to buy universal-bank underwritten securities if they suspect agency problems because the universal bank is involved as a first party (Allen and Faulhaber, 1989). This would imply higher-than-average underpricing.

Gande et al. (1997) find some evidence for certification when they compare debt securities underwritten by Section 20 subsidiaries of bank holding companies to those underwritten by in-

vestment houses. They find evidence of a net certification effect for bank holding companies. Relative to specialized investment banks, holding-company subsidiaries set abnormally high subscription prices for risky firms that receive loans from the bank. Gande et al. also find no evidence of conflicts of interest even when an issue is used to repay bank debt. As they explain, however, the issues of the two different types of underwriters differ greatly in size and might not be comparable. Also, the selection of banks that provide the underwriting services under section 20 is not completely random since those banks are reputable large banks with distinct brand recognition.

Empirical studies of U.S. universal banking in the pre-Glass-Steagall period find mixed results on the effects of universal-bank underwriting. Kroszner and Rajan (1994) compare the ex-post performance of securities underwritten by commercial banks and nonbank investment houses, finding no evidence that commercial banks systematically fooled the public securities markets. Instead, there is some evidence that the markets have rationally discounted for potential conflicts associated with universal banking. Ang and Richardson (1998) confirm this result. Puri (1994) studies long-term default performance of bank-underwritten issues as compared to non-bank-underwritten issues before the Glass-Steagall Act of 1933 barred commercial banks from underwriting, finding that bank-underwritten issues defaulted less than non-bank underwritten issues. Puri (1996) examines the pricing of bank-underwritten securities and non-bank-underwritten securities, finding that investors were willing to pay higher prices for securities underwritten by banks rather than investment houses. A comparison of in-house investment departments and affiliated outside investment banks does not indicate that greater conflicts of interest were associated with the in-house underwriters. Kroszner and Rajan (1997), by contrast, find that in-house departments underwrote seemingly higher-quality securities than did comparable affiliates, but obtained lower prices for the issues they underwrote, indicating that rational investors required a risk premium.

Gompers and Lerner (1999) investigate contemporary underwriter affiliation with venture-capital firms—a situation partly analogous to universal banking—and find evidence of a discount

related to those affiliations. Ber, Yafeh, and Yosha (2000) investigate 128 Israeli IPOs. They compare IPOs with and without a significant loan relationship between underwriter and issuer the year prior to the IPO. The issuers with a lending relationship with the underwriter demonstrate better-than-average post-issue accounting performance, indicating that the banks picked good issuers. Surprisingly, however, the stock performance of these IPOs is below average. Hamao and Hoshi (2000) analyze the yield differentials between Japanese corporate bonds underwritten by securities firms and those underwritten by bank-owned subsidiaries, finding that investors discount bonds underwritten by bank-owned subsidiaries.

3. Hypotheses and data

The foregoing discussion suggests three hypotheses relating underpricing and long-term performance to issuer, underwriter, and investor characteristics.

1. *Certification.* If investors are rational and perceive universal banks to be certifiers of high quality, we expect universal-bank-underwritten securities to have higher-than-average subscription prices (lower underpricing) and neutral or superior long-term stock performance.
2. *Naive Investor.* If investors are naive and universal banks exploit their private information to push low-quality securities, we expect universal-bank-underwritten securities to display normal underpricing and significantly worse long-term performance.
3. *Discount for Conflicts of Interest.* If investors are rational and worried about conflicts of interest, we expect universal-bank-underwritten securities to have lower-than-average subscription prices (higher underpricing) and average long-term performance.

To distinguish among the above hypotheses we investigated all 306 IPOs to the German stock market from January 1997 to December 1999. Our analysis relates the initial returns (underpricing) and the secondary-markets returns to the type of underwriter and a set of issuer characteristics. The German banking system is an excellent setting for this comparison because it has traditionally permitted any financial services to be carried out by banks. Moreover, despite the common perception that large universal banks dominate the German economy, specialized financial institutions are also active in the German market. Until recently, corporations, banks, and

insurance companies owned most German equities; consequently, there was a very small market for IPOs. The market has recently become much more liquid, however, as reflected in the unprecedented 306 IPOs from 1997 to 1999.

The German stock exchange (Deutsche Börse AG) publishes information on issue dates, subscription prices, first-day-closing prices, issuer industry, issuer revenue, lead underwriters, secondary market prices, and venture-capital investments. All other information about the issuers, including the distribution of debt, has been collected from the issuers' prospectuses.

After a careful review of each underwriter's scope of financial services, we classify a bank as a universal bank if it performs both commercial and investment banking. In recent years the demand for investment-banking services has prompted a number of banks to advertise themselves as specialists in this area. However, we designate a bank as a specialized investment bank only if the primary SIC code of the institution indicates investment-banking services, the balance sheet of the underwriter indicates no income from lending business, and the bank's self-description suggests that it does not have commercial- or retail-banking subsidiaries. With these criteria, we designate 20 percent of the IPOs in our sample as being underwritten by specialized banks.² Table 1 lists the 52 banks involved with IPOs during our sample period. Several banks underwrote only one IPO; Deutsche Bank, the most active bank in the sample, underwrote 32.³

[Table 1 about here]

² Conflicts of interest may arise if any of these criteria are violated. We considered two alternative approaches to classifying the relationship between issuer and underwriter: (1) gather data on the value and duration of each preexisting lending relationship, and (2) compute the ratio of bank income from lending versus from income from fee-based services as for each underwriter, and use a cut-off point to distinguish between specialized and diversified banks. Neither alternative, in our view, captures the potential for conflicts of interest as well as the definition outlined in the text.

³ Unfortunately, we cannot determine the precise lending relationship between the commercial-banking subsidiaries of the universal banks and the IPO clients. In other words, an investment-banking subsidiary could be underwriting securities for firms that have no preexisting lending relationships with the bank's commercial-banking subsidiary. Because investors cannot determine this relationship either, we assume that rational investors will suspect the possibility of conflicts of interest associated with these lending relationships.

Underpricing is defined as the difference between the first-day closing price and the subscription price as a percentage of the subscription price. Secondary-market performance is measured in two ways: first, as the difference of the price recorded on March 17, 2000 and the subscription price, all divided by the subscription price, and second, as the difference between the price recorded on March 17, 2000 and the closing price on the first trading day, all divided by the first-day closing price. Although the time since IPO of course varies among the securities in our sample, we choose a uniform ending day for computing long-term returns to avoid the need to purge each individual stock's returns of systematic market movements. We measure secondary-market performance with simple buy-and-hold returns rather than cumulative abnormal returns because the German stock market, in spite of the recent surge in IPOs, is still relatively illiquid.⁴ To account for time- and cohort-specific effects we include year-fixed-effects in all our regressions.

We also include variables that proxy for unobservable issuer-specific risk. As is common in the IPO literature, issue size is used to proxy for the level of information available about the issuer. The larger the firm, the more information is available about it; smaller issues are typically offered by startup companies and are viewed as particularly risky (Ritter, 1987; Tinic, 1988). In the German market, the most highly publicized issues of seasoned firms have more than one lead bookrunner, coordinating the offering in different countries. We thus include a dummy variable for issues with more than one lead underwriter. Moreover, many German IPOs are jointly underwritten by foreign banks. Because these issues are typically spinoffs or subsidiaries of foreign parents, investors are likely to have considerable information about them. We thus include a dummy variable for the presence of a foreign lead underwriter to control for this reduced level of uncertainty.

⁴ Loughran and Ritter (1996) investigate secondary stock prices in the United States and find essentially the same results whether using cumulative abnormal returns or simple buy-and hold returns.

The ability to acquire venture capital can be an indicator of high quality (Chan, 1983; Brav and Gompers, 1997). Venture-capital firms are particularly well suited to provide third-party certification. Venture-capital firms depend to some extent on access to the IPO market on favorable terms and on establishing enduring relationships with pension fund managers and other institutional investors. For this reason they have strong incentives to establish reputations for trustworthiness (Sahlmann, 1990; Megginson and Weiss, 1991; Admati and Pfleiderer, 1994). Barry et al. (1990) document that venture-capital firms specialize in portfolio firms to provide intensive monitoring services, taking concentrated equity positions, maintaining investments beyond the IPO, and serving on boards. They, as well as Megginson and Weiss (1991), find that venture-capital backing results in significantly lower initial returns. In addition, the presence of a venture capitalist lowers the total costs of going public and helps maximize the net proceeds to the offering firm. Venture-capital-backed issues can also work with better auditors and receive greater attention from institutional investors.

To capture third-party certification we include the pre-IPO ownership percentage of a venture-capital firm as a control variable in our regressions.⁵ To distinguish between third- and first-party certification, we also include a dummy variable representing an affiliation between a venture-capital firm and one of the (lead) underwriters. Only 26 issuers have underwriters that have an affiliation with a venture-capital firm or own pre-IPO equity. These affiliations are present for both universal banks and specialized banks, but specialized banks are over-represented in this category. The affiliations could thus be interpreted as a substitute for a lending relationship.

We also include four dummy variables for the most commonly represented industries: software and Internet, technology, pharmaceuticals, and financial services. To help determine if banks handpick the issues they underwrite or if issuers self-select to reputable banks, we also include variables representing each bank that underwrote at least ten IPOs as lead underwriter during the 1997–99 period.

⁵ We include directly held bank-equity stakes in this category.

4. Results

4.1. Underpricing

Table 2 reports results of an OLS regression of underpricing on the universal-bank dummy and the control variables described above. The coefficient on the dummy variable is positive and significant, indicating that universal-bank underwriting is associated with higher average underpricing, controlling for observable issuer-specific characteristics. Higher average underpricing is inconsistent with the certification hypothesis. As a group, universal banks are not selling securities at higher prices. The finding is also inconsistent with the naive-investor hypothesis, in which banks exploit their informational advantages at the expense of investors. The findings are consistent with the discount-for-conflicts-of-interest hypothesis: investors require compensation for the potential hazards associated with universal-bank underwriting.

[Table 2 about here]

Although universal banks, as a group, are associated with lower subscription prices, the coefficients on two of the bank dummies, those for Deutsche Bank and Dresdner Bank, are negative and significant, meaning that these two banks set above-average subscription prices. None of the coefficients on the other bank dummies were statistically significant. Because Deutsche Bank and Dresdner Bank are among the largest (and most reputable) universal banks, this could indicate that some universal banks do certify: issues underwritten by these banks are perceived to be less risky, on average, than issues underwritten by other universal banks.

Our results are also inconsistent with the claim that universal banks offer discounted securities to reward their own investing clients and asset-management subsidiaries. Of the universal banks in the sample, one would expect the banks with the greatest variety of products, depositors, and mutual fund subsidiaries—banks such as Deutsche Bank and Dresdner Bank—to en-

gage in this practice. The most diversified banks, however, tend to set higher average subscription prices.

Venture-capital backing is also associated with significantly higher average underpricing. This is surprising considering that the research cited previously on venture-capital backing in the United States finds that venture-capital backing is a sign of a high-quality issue. The underwriter's venture-capital stake is also associated with higher underpricing. The initial returns earned for IPOs underwritten by venture-capital affiliates and universal banks could also be interpreted as up-front compensation for potential conflicts of interest.

The proxies for risk coincide with our expectations. Larger issues are associated with statistically significant lower underpricing, indicating that investors consider those issues to be safer. The dummy variables denoting issues underwritten by more than one lead underwriter as well as foreign underwriters are negative, consistent with less risky issues; however, neither coefficient is statistically significant.⁶ The industry dummies for pharmaceutical issuers are negative and significant. This is plausible if pharmaceutical firms are perceived to be less risky because product demand and industry structure are comparatively easy to evaluate. Surprisingly, technology IPOs are also associated with significantly lower underpricing. The category technology, however, comprises a large number of manufacturing and "old economy" firms along with a few speculative high-tech firms such as biotechnology.

If the long-term performance of universal-bank-underwritten securities is normal, then their higher-than-average underpricing may be interpreted as an up-front risk premium that compensates investors for underwriter-specific conflicts of interest. If universal-bank-underwritten securities perform poorly in the long run, however, then this underpricing is better interpreted as up-front compensation for (unobservable) issuer-specific risk. To distinguish between these possibilities we turn next to the long-term performance of universal-bank-underwritten IPOs and IPOs underwritten by specialized investment banks.

4.2. Long-term Performance

Table 3 presents the results of two OLS regressions of buy-and-hold returns on the universal-bank dummy and control variables. The first model includes the first-day return (i.e., it measures performance as the difference between the price recorded on March 17, 2000 and the subscription price, all divided by the subscription price). The second model excludes the first-day return (i.e., it measures performance as the difference between the price recorded on March 17, 2000 and the first-day closing price, all divided by the first-day closing price).

[Table 3 about here]

As Table 3 shows, secondary-market performance is not systematically related to either bank type or venture-capital affiliation. This suggests that IPOs underwritten by universal banks or by underwriters with a venture-capital affiliation cannot be distinguished in the secondary markets from IPOs underwritten by specialized, unaffiliated banks. Combined with the results presented in Table 2, this suggests that universal banks and underwriters with venture-capital affiliations are systematically discounting IPOs that are otherwise indistinguishable (in the long run) from other IPOs. Investors are concerned about potential conflicts of interest associated with these underwriters and require appropriate compensation for bearing this risk.

As in the underpricing regressions, there is variation across individual banks. The coefficient for Deutsche-Bank-underwritten IPOs is positive and significant, indicating that the negative and significant coefficient on underpricing reflects high-quality issues, not an attempt to cross-subsidize or to float low-quality issues at high subscription prices. The Dresdner Bank coefficient is not significant, suggesting that the secondary-market returns of those IPOs are normal. These two large universal banks can underwrite average or superior securities at higher subscription prices. In contrast to the group of universal banks as a whole, these banks appear to se-

⁶ The foreign-ownership dummy is negative and significant in a model without other risk proxies.

lect their IPO candidates and to control the potential conflicts of interest associated with their double role as lender and underwriter.

4.3. Choice of Underwriter

Our results raise a puzzling question: Why do clients of average universal banks accept lower subscription prices? Why would a firm choose a universal bank or a bank with a venture-capital affiliation as underwriter, knowing these issues raise less capital than issues underwritten by specialized and unaffiliated underwriters, even for stocks that are otherwise indistinguishable in the secondary markets? More generally, why do banks in Europe and elsewhere seek to integrate commercial and investment banking?

One possible explanation is self-selection: lower-quality issuers tend to select universal banks. Indeed, our underpricing results could be driven not by inherent problems associated with relationship banking, but by unobserved heterogeneity—different types of underwriter systematically underwrite different types of securities. Of course, our underpricing and long-term performance regressions control for observable risks, and the long-term performance results do not indicate that universal banks underwrite low-quality issues. Alternatively, underwriter choice could depend on switching costs and the issuer's desire to protect its private information. Relationship banking offers the client not only one-stop banking and reduced transaction costs but also confidentiality. Srinivasan (2000) shows that switching costs increase a client's propensity to keep an underwriter for repeat issues and as adviser. Banks trying to entice clients to switch underwriters offer free services to compensate for the switching costs incurred by clients that make firm-specific information available to a new bank. For these reasons, firms may choose a universal bank or venture-capital-affiliated bank simply because they have an ongoing relationship with the bank.

To clarify the relationship between issuer characteristics, preexisting relationships, and underwriter type, we estimate a probit model of underwriter choice on the issuer characteristics

used in the previous regressions along with the issuer's pre-IPO revenue (a proxy for firm age) and the issuer's short- and long-term bank debt, which proxy for bank relationships. While most firms have current accounts with some banks, long-term debt (more than five years until maturity) is a useful proxy for a significant banking relationship.⁷ An investor who observes a large amount of outstanding bank debt might see a potential for conflicts of interest. Because specialized investment banks tend to be involved with issuers through equity stakes they hold directly, rather than through an affiliated venture-capital firm, we distinguish between the lead underwriter's venture capital and equity stakes.

Table 4 presents the probit results. Several key variables have statistically significant coefficients but small point estimates. Larger issues are somewhat more likely to have a universal bank as lead underwriter. Firms with more short-term debt and higher revenue are slightly less likely to choose a universal bank as underwriter. Interestingly, the industry of the issuer is not related to its choice of underwriter. The selection of issuers to either universal banks or specialized banks does not appear to be substantially related to observable risk proxies. Universal-bank association with larger issues might be interpreted as a sign of self-selection by the bigger, better-known issuers to universal banks. Firms that can borrow more money in current accounts and generate higher revenue, on the other hand, might be considered more mature. Their association with specialized investment banks might be considered proof of the opposite relationship. This provides additional support for the idea that choice of underwriter is not motivated by the universal bank's ability or incentive to float lower-quality issues.

[Table 4 about here]

⁷ Unfortunately, we have only the amount of bank debt reported by the issuer, not whether the loans are from the specific underwriter or another bank. We assume that the largest percentage of long-term bank debt is borrowed from one of the universal banks that function as (lead) underwriting team. The information on bank debt and revenue was available only for 111 observations.

The most interesting result is the large and significant probability of choosing a universal bank if the issuer has long-term bank debt. This suggests that preexisting banking relationships are a stronger determinant of underwriter choice than other issuer characteristics, such as accounting numbers, industry, or firm age. Issuers are more inclined to accept lower subscription prices if they have significant banking relationships. This is consistent with the hypothesis that issuers incur switch costs if they choose a third party as underwriter. Apparently, avoiding the switch costs along with the savings associated with using a related underwriter outweigh the costs of leaving money on the table.

5. Conclusion

This paper investigates the relationship between underpricing, secondary market returns of IPOs and the lead underwriter's bank structure. Universal banks face additional potential conflicts of interest when they underwrite equities because of their double role as lender and underwriter. The empirical results presented here show that universal banks underwrite stocks that perform normally in the secondary markets, but they set lower-than-average subscription prices, suggesting that investors require compensation for potential conflicts of interest associated with universal banking. We also demonstrate that bank reputation can mitigate these conflicts of interest: the variation in underpricing and secondary-market performance among universal banks indicates self-selection of the better-quality issuers to the most reputable banks.

Finally, the paper shows that of the issuer characteristics only pre-existing banking relationships determine the choice of the underwriter in spite of lower IPO capitalization achieved with a universal bank underwriter. While the market recognizes that conflicts of interest can arise if commercial banking and investment banking are combined in one institution, our results suggest that investors are aware of these potential problems and require—and receive—an appropriate discount. For this reason, investor protection does not require prohibitions on the combination of commercial banking and investment banking. The question of how banking services should be

combined is best left to banks and issuers, who will weigh the benefits associated with combinations against the cost associated with lower capitalization in an IPO.

Further research is needed on the importance of preexisting banking relationships. Duration and relative volumes of loans could be proxies for the quality of information the relationships produce. It would also be interesting to relate this information to a measure of forgone IPO capitalization to infer the relative value of the relationship. Our understanding of these practices could also benefit from more extensive comparisons of investment-banking relationships with lending relationships. Moreover, the relationships between IPO returns and parent-firm sponsorship, corporate investors, and institutional investors might offer further insight into the role of these corporate monitors and their value as certifiers.

7. References

- Admati, A. R. and P. Pfleiderer. 1994. "Robust Financial Contracting and the Role for Venture Capitalists." *Journal of Finance* 49: 371–402.
- Akerlof, G., 1970. "The Market for Lemons: Quality, Uncertainty and the Market Mechanism." *Quarterly Journal of Economics* 84: 488–500.
- Allen, F. and G. Faulhaber. 1989. "Signaling by Underpricing in the IPO Market." *Journal of Financial Economics* 23: 303–23.
- Ang, J. S. and T. Richardson. 1998. "The Underwriting Experience of Commercial Bank Affiliates prior to the Glass-Steagall Act: A Re-examination of Evidence for Passage of the Act." *Journal of Banking and Finance* 18: 351–95.
- Baron, D. 1982. "A Model of the Demand for Investment Banking Advising and Distribution Services for New Issues." *Journal of Finance* 37: 955–76.
- Beatty, R. P., and J. R. Ritter 1986. "Investment Banking, Reputation, and the Underpricing of Initial Public Offerings." *Journal of Financial Economics* 15: 213–32.
- Beatty, R. P. and I. Welch. 1996. "Issuer Expenses and Legal Liability in Initial Public Offerings." *Journal of Law and Economics* 39: 545–602.
- Ber, H., Y. Yafeh, and O. Yosha. 2000. "Conflict of Interest in Universal Banking: Bank Lending, Stock Underwriting, and Fund Management." CEPR Working Paper No. 2359.
- Benston, G. J. 1994. "Universal Banking." *Journal of Economic Perspectives* 8: 121–43.
- Benveniste, L., and P. Spindt. 1989. "How Investment Bankers Determine the Offer Price and Allocation of New Issues." *Journal of Financial Economics* 24: 343–61.
- Berger, A. N. and G. F. Udell. 1995. "Relationship Lending and Lines of Credit in Small Business Finance." *Journal of Business* 68: 351–81.
- Booth, J. R. and Chua, L. 1996. "Ownership Dispersion, Costly Information, and IPO Underpricing." *Journal of Financial Economics* 41: 291–310
- Carter, R. B., F. H. Dark, and A. K. Singh. 1998. "Underwriter Reputation, Initial Returns, and the Long-Run Performance of IPO Stocks." *Journal of Finance* 53: 285–311.
- Carter, R. B. and S. Manaster. 1990. "Initial Public Offerings and Underwriter Reputation." *Journal of Finance* 45: 1045–67.
- Chan, Y., 1983. "On the Positive Role of Financial Intermediation in Allocation of Venture Capital in a Market with Imperfect Information." *Journal of Finance* 43: 271–81.
- Chemmanur, T. J. and P. Fulghieri. 1994a. "Reputation, Renegotiation, and the Choice between Bank Loans and Publicly Traded Debt." *Review of Financial Studies* 7: 475–506.

- Chemmanur, T. J. and P. Fulghieri. 1994b. "Investment Bank Reputation, Information Production, and Financial Intermediation." *Journal of Finance* 49: 57–79.
- Diamond, D.W. 1989. "Reputation Acquisition in Debt Markets." *Journal of Political Economy* 97: 828–62.
- Diamond, D. 1984. "Financial Intermediation and Delegated Monitoring." *Review of Economic Studies* 51: 393–414.
- Drake, P. D. and M. R. Vetsuypens. 1993. "IPO Underpricing and Insurance against Legal Liability." *Financial Management*, 64–73.
- Francke, H. and M. Hudson. 1984. *Banking and Finance in West Germany*. New York: St. Martins.
- Fulghieri, P. and M. Spiegel. 1993. "A Theory of the Distribution of Underpriced Initial Public Offers by Investment Banks." *Journal of Economics and Management Strategy* 2: 509–30.
- Gande, A., M. Puri, A. Saunders, and I. Walter. 1997. "Bank Underwriting of Debt Securities: Modern Evidence." *Review of Financial Studies* 10: 1175–202.
- Gompers, P. and J. Lerner. 1999. "Conflict of Interest in the Issuance of Public Securities: Evidence From Venture Capital." *Journal of Law and Economics* 62: 1–28.
- Grinblatt, M., and C. Hwang. 1989. "Signaling and the Price of New Issues." *Journal of Finance* 44: 393–420.
- Hamao, Y. and T. Hoshi. 2000. "Bank Underwriting of Corporate Bonds: Evidence from Japan After the Financial Reform of 1993." Working paper, Marshall School of Business, University of Southern California.
- Hughes, P. J., and A. V. Thakor. 1992. "Litigation Risk, Intermediation, and the Underpricing of Initial Public Offerings." *Review of Financial Studies* 5: 709–42.
- Hunt-McCool, J., S. C. Koh, and B. B. Francis. 1996. "Testing for Deliberate Underpricing in the IPO Premarket: A Stochastic Frontier Approach." *Review of Financial Studies* 9: 1251–69.
- Ibbotson, R. G. and J. F. Jaffe. 1975. "'Hot Issue' Markets." *Journal of Finance* 30: 1027–42.
- Jain, B. A. and O. Kini. 1999. "The Life Cycle of Initial Public Offering Firms." *Journal of Business Finance and Accounting* 26: 1281–1307.
- James, C. 1992. "Relationship-Specific Assets and the Pricing of Underwriter Services." *Journal of Finance* 47: 1865–85.
- John, K. and D. C. Nachman. 1995. "Risky Debt, Investment Incentives, and Reputation in a Sequential Equilibrium." *Journal of Finance* 40: 863–78.
- Krigman, L., W. Shaw, and K. Womack. 1999. "The persistence of IPO Mispricing and the Predictive Power of Flipping." *Journal of Finance*, forthcoming.

- Kroszner, R. S. and R. G. Rajan. 1994. "Is the Glass-Steagall Act Justified? A Study of the U.S. Experience with Universal Banking Before 1933." *American Economic Review* 84: 810–32.
- Kroszner, R. S. and R. G. Rajan. 1997. "Organization Structure and Credibility: Evidence from Commercial Bank Securities Activities before the Glass-Steagall Act." *Journal of Monetary Economics* 39: 475–516.
- Loughran, T. and J. R. Ritter. 1996. "Long-Term Market Overreaction: The Effect of Low-Priced Stocks." *Journal of Finance* 51: 1959–70.
- Loughran, T. and J. R. Ritter. 1999. "Why don't Issuers Get Upset About Leaving Money on the Table in IPOs?" Working paper, University of Florida.
- Meggison, W. L. and K. A. Weiss. 1991. "Venture Capitalist Certification in Initial Public Offerings." *Journal of Finance* 46: 897–903.
- Michaely, R. and W. H. Shaw. 1994. "The Pricing of Initial Public Offerings: Tests of Adverse Selection and Signaling Theories." *Review of Financial Studies* 7: 279–319.
- Minsky, H. P. 1996. "Would Universal Banking Benefit the U.S. Economy?" in Saunders, A. and I. Walter (eds.), *Universal banking: Financial System Design Reconsidered*, Irwin 1996.
- Muscarella, C. J. and M. R. Vetsuypens. 1989. "The Underpricing of 'Second' Initial Public Offerings." *Journal of Financial Research* 12: 183–92.
- Nanda, V. and Y. Yun. 1997. "Reputation and Financial Intermediation: An Empirical Investigation of the Impact of IPO Mispricing on Underwriter Market Value." *Journal of Financial Intermediation* 6: 39–63.
- Puri, M. 1994. "The Long-term Default Performance of Bank Underwritten Security Issues." *Journal of Banking and Finance* 18: 397–418.
- Puri, M. 1996. "Commercial banks in investment banking, Conflict of Interest or Certification Role?" *Journal of Financial Economics* 40: 373–401.
- Ritter, J. R. 1987. "The Costs of Going Public." *Journal of Financial Economics* 19: 187–212.
- Rock, K. 1986. "Why New Issues Are Underpriced." *Journal of Financial Economics* 15: 187–212.
- Roe, M. J. 1990. "Political and Legal Restraints on Ownership and Control of Public Companies." *Journal of Financial Economics* 27: 7–41.
- Roe, M. J. 1998. "Backlash." *Columbia University Law Review* 217:
- Sahlmann, W. 1990. "The Structure and Governance of Venture-capital Organizations." *Journal of Financial Economics* 27: 473–521.
- Schmidt, R. H., F. Dietz, S. Fellermann, N. Hellmann, K. Schommer, M. Tyrell and G. Wilwerding. 1988. "Underpricing bei deutschen Erstmissionen 1984/85." *Zeitschrift für Betriebswirtschaftslehre* 58: 1193-1203.

- Shiller, R. 1990. "Speculative Prices and Popular Models." *Journal of Economic Perspectives* 4: 55–65.
- Srinivasan, A. 2000. "Investment Banking Relationships: Theory and Evidence from Merger Fees." Working paper.
- Tinic, S. 1988. "Anatomy of Initial Public Offerings of Common Stock." *Journal of Finance* 43: 789–822.
- Welch, I. 1989. "Seasoned Offerings, Imitation Costs, and the Underpricing of Initial Public Offerings." *Journal of Finance* 44: 421–49.
- Welch, I. 1992. "Sequential Sales, Learning, and Cascades." *Journal of Finance* 47: 695–732.

Table 1: Sample Banks

Firms in **bold** are universal banks; firms in *italics* are foreign (non-German) banks.

Lead underwriter	IPOs	Lead underwriter	IPOs
Baader Wertpapierhandelsbank	5	HSBC Trinkhaus Burkhardt	4
Baden Württemberg. Bank	5	<i>ICE</i>	1
<i>BancBostonRobertsonStephens</i>	2	<i>J. Henry Schroder</i>	1
Bank Vontobel	5	JP Morgan	2
Bankgesellschaft Berlin	4	Kling, Jelko, Dr. Dehmel	4
Bay. Hypobank	3	LB Baden Württemberg	2
Bay. Landesbank	3	<i>Lehman Brothers</i>	3
Bay. Vereinsbank	2	M.M. Warburg	5
Bay. Hypo-und Vereinsbank	12	Merck Finck & Co.	1
Berliner Effektenbank	4	<i>Merrill</i>	2
Berliner Freiverkehr	4	Metallbank	5
BHF Bank	10	<i>Morgan Stanley</i>	3
Börsenmakler Schnigge	1	Nord LB	4
Commerzbank	17	<i>Paribas</i>	3
Concord Effekten	7	Raiffeisen Zentralbank Österreich	2
Credit Suisse First Boston	7	<i>Robert Fleming</i>	2
Deutsche Bank	32	Sal. Oppenheim	10
DG Bank	31	<i>Salomon Smith Barney</i>	1
Dresdner Bank	29	Schmidt Bank	1
<i>Fleming</i>	1	SGZ	2
German Brokers	1	<i>Soc. Generale</i>	1
<i>Goldman Sachs</i>	16	Stadtsparkasse Koeln	1
Gontard	7	Trinkhaus Burkhardt	3
Gontard & Metallbank	6	UBS	5
Hanseatisches Wertpapierhandels	2	Vereins- und Westbank	3
Hauck	2	West LB Panmure	19

Table 2: Underpricing

OLS regressions of initial IPO returns on issuer and bank characteristics. Standard errors in parentheses. ** and * represent statistical significance at the 5 and 10 percent levels, respectively. The model includes year dummies and dummies for the 10 most active underwriters.

Constant	20.30*
	(13.00)
Dummy for universal-bank affiliation	29.90**
	(12.30)
Pre-IPO ownership of venture-capital firm	0.40*
	(0.24)
Dummy for affiliation between venture-capital firm and a lead underwriter	55.40**
	(13.60)
Issue size	-0.07*
	(0.04)
Dummy for multiple lead underwriters	-0.30
	(15.30)
Dummy for foreign lead underwriter	-8.50
	(11.70)
Industry dummies:	
Software	-1.60
	(9.70)
Technology	-19.20*
	(10.70)
Pharmaceuticals	-26.00*
	(14.40)
Financial services	3.70
	(13.90)
R ²	0.18
Number of observations	306

Table 3: Long-Term Performance

OLS regressions of secondary-market returns on issuer and bank characteristics. Standard errors in parentheses. ** and * represent statistical significance at the 5 and 10 percent levels, respectively. The models include year dummies and dummies for the 10 most active underwriters.

	Including initial return	Excluding initial return
Constant	428.30** (140.40)	355.60** (125.90)
Dummy for universal-bank affiliation	67.80 (134.00)	-23.90 (120.20)
Pre-IPO ownership of venture-capital firm	1.20 (2.60)	0.70 (2.30)
Dummy for affiliation between venture-capital firm and a lead underwriter	16.50 (145.60)	-106.10 (130.60)
Issue size	-0.70* (0.40)	-0.50 (0.40)
Dummy for multiple lead underwriters	-154.30 (164.90)	-123.30** (147.90)
Dummy for foreign lead underwriter	191.30 (126.50)	130.90** (113.50)
Industry dummies:		
Software	-1.90 (103.90)	21.00 (93.20)
Technology	-37.00 (114.70)	34.80 (102.90)
Pharmaceuticals	403.70** (155.20)	427.10** (139.20)
Financial services	1.20 (151.60)	-11.30 (136.00)
R ²	0.20	0.19
Number of observations	306	306

Table 4: Choice of Underwriter

Probit regression of underwriter choice on issuer characteristics. Dependent variable equals 1 if underwriter is a universal bank and zero otherwise. *P*-values in parentheses. ** and * represent statistical significance at the 5 and 10 percent levels, respectively.

Constant	0.97 (0.48)
Issuer's pre-IPO revenue	-0.002** (0.001)
Short-term debt	-0.04** (0.02)
Long-term debt	0.12* (0.07)
Issue size	0.02** (0.01)
Dummy for foreign lead underwriter	0.48 (0.40)
Industry dummies:	
Software	-0.68 (0.52)
Technology	-0.82 (0.56)
Pharmaceuticals	-0.58 (0.72)
Financial services	0.23 (0.86)
Lead underwriter's venture-capital stake	-0.95 (0.90)
Lead underwriter's equity stake	-0.01 (0.77)
Number of observations	111