Structure and Pricing of Large Bank Loans

James R. Booth and Lena Chua

Associate Professor, Arizona State University and Visiting Scholar, FRBSF; and Assistant Professor, University of Hawaii, Manoa, Visiting Professor, The American Graduate School of International Management, and Associate of the Pacific Basin Center for Monetary and Economic Studies, FRBSF.

This paper examines the characteristics of large bank loans as a form of corporate financœ. We compare the characteristics of a sample of these loans with private placements and public issues of debt. The unique features of large bank loans that may encourage firms to continue using this source of financing include:borrower flexibility in deciding on the timing and amount of borrowing; the use of fixed-spread floating rate of interest, flexibility of changing and renegotiating contract features,such as covenants, during the life of the contract.

The role that bank debt plays in the capital structure of corporations has received much attention in recent years.[1] Among the issues addressed in this research are the possible unique role of bank loans in financing firms' activities and how contract features may serve to reduce the adverse consequences of differential information between the borrower and the bank. This body of literature focuses on contract features as a means to reduce the costs associated with debt when the incentives of the borrower and lender differ (see for example Berlin, 1987). Most of the research on contract features is theoretical due to the lack of detailed data on the contract features of bank loans. The scarcity of information results from the fact that these are private debt contracts and hence are often not available to researchers. In this study we examine a sample of large bank loans to gain insights into the nature of the lending arrangements between banks and large corporations. By examining loan characteristics we can gain insight into the unique aspects of this source of corporate finance as compared to private placements of debt and public debt issues. This also permits us to provide an update of information on the pricing of business loans since that available in Brady (1985) and Boltz and Campbell (1978).

We begin with a comparison of the characteristics of bank loans in private placements and public debt issues. This includes a discussion of contract features and the use of commitments in bank lending. We next focus on pricing issues across the markets, with special emphasis on large bank loans. In the loan pricing discussion, we focus on the use of fixed-spread, floating-index contracts to determine the borrowing rate, and the use of a variety of fees in bank loans. This is followed by a discussion of covenants in our sample of bank loans compared to those reported in earlier studies for private placements and public debt. The final section summarizes the unique aspects of this source of corporate finance relative to other sources of debt finance.

1. See for example Bhattacharya and Thakor (1993).

I. A COMPARISON OF BANK LOANS WITH PRIVATE AND PUBLIC DEBT

A firm's choice between bank loans and securities has been a topic of much interest to academics and policymakers over the years. A basic theme of much of this research is that, for some firms, it is too costly for outsiders to stay informed about the developments of the firm that affect credit risk. In turn, they are unable to influence the firm to protect their interests as creditors. Banks arise as delegated monitors to keep a check on the behavior of managers.[2] This argument may be extended to suggest that the degree of information asymmetry associated with the borrower will influence the market in which a firm borrows.

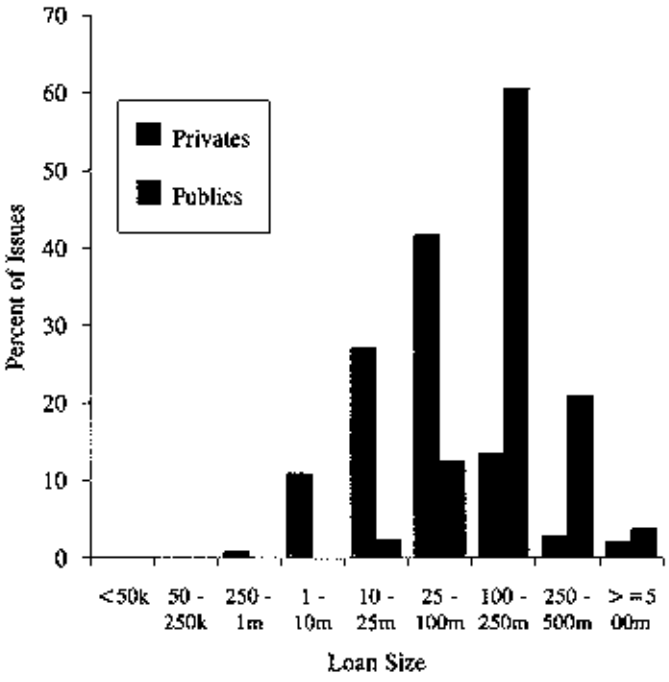
Evidence consistent with the role of information in the choice of finance is provided by Carey, Prowse, Rea, and Udell (1993). They suggest that small firms are dependent almost entirely upon banks because their loans require extensive lender due diligence and monitoring associated with bank lending. They argue that large firms capable of issuing securities with few information problems are able to borrow in any of the major debt markets, from banks, or by issuing commercial paper. Their findings are consistent with the notion that as a firm becomes larger, their informational problems diminish, and they increasingly rely on more direct sources of corporate finance.

One piece of evidence they use to support this is the relative characteristics of business loans, private placements, and public debt issues. Bank loan data used in their study is from the Federal Reserve Board's *Quarterly Survey of Terms of Bank Lending to Business* for 1989. As expected, their results reveal that most bank loans are quite small compared to private placements and public debt issues. Figures 1 and 2 show the percent of private and public debt issues distributed by loan size and length to maturity, respectively. From the 1989 survey, the median loan size was about $50,000 and the mean was about $1 million. They note that approximately 82 percent were under $1 million and 96 percent were under $10 million. These bank loans are smaller than their sample of private placements, with a median size of $32 million and a mean size of $76 million. Additionally, Figure 1 shows that around 80 percent of the private placement issues in Carey, et al.'s study were between $10 million and $100 million in size. This compares to a median and mean size for public debt issues of $150 million and $181 million, respectively. Examining the characteristics of firms that borrow in each market in 1989, they find support for the creditworthiness of the borrower playing a role in their financing choice.

2. For a formal development of this argument, see Diamond (1984).

FIGURE 1

SIZE DISTRIBUTION OF PRIVATE AND PUBLIC DEBT ISSUES BY PERCENTAGE OF ISSUES, 1989



SOURCE: Carey, et al., 1993

The Carey, et al. study also provides comparisons of the maturity characteristics of these sources of business borrowing. They find that the average maturity of private placements is much longer than the average maturity of bank loans in their sample. Figure 2 shows that, of the private placements offered by nonfinancial corporations, 77 percent have maturities between three and fifteen years. The median and mean maturities were both nine years. They note that because most are amortizing, the median average life falls between five and seven years. The median for public bonds in their sample was ten years. The median maturity of bank loans to businesses, in 1989, was just over three months, and nearly 80 percent had maturities of less than one year. These findings confirm that average issue sizes and average maturities differ drastically between bank loans and both private placements and public debt issues. However, the data set they examine does not allow for a comparison of the characteristics of bank loans by large corporations having access to one or both of these nonbank sources of debt.

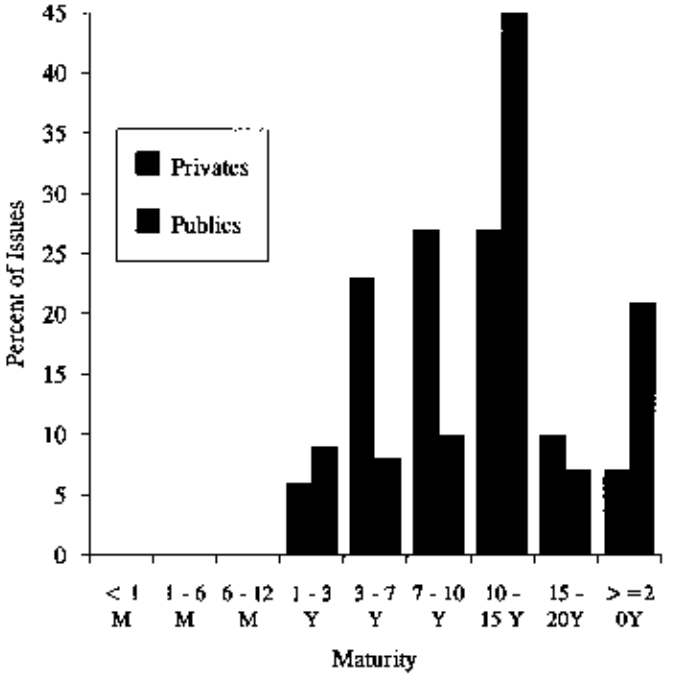
To focus on the issue of bank borrowing by large companies, we analyze a sample of large bank loans collected

by Loan Pricing Corporation, provided in their Dealscan database. Using the data provided for the year of 1989, we are able to gain insight into the structure of the loan market for large bank loans during the same time period as Carey, et al. (1993). The sample data is collected from loan contract information included in corporate filings with the Securities and Exchange Commission. This data is supplemented with information from publications such as *American Banker,* among others. Because of news coverage and filing requirements, the sample is biased toward large loans and large firms. To gain some insight into the types of firms in the sample data provided by Loan Pricing, we note the mean sales level of borrowing firms is approximately $1.1 billion. This average size of sample firms is expected to be much larger than that of an average firm that borrows from a bank since sample firms are required to file with the Securities and Exchange Commission. Typically, this involves only firms that have public debt or equity outstanding. Though this data is incomplete and thus may be upwardly biased, it allows a suggestive comparison with the sample firms examined in Carey, et al. (1993). They find that for the same year, firms with public debt outstanding have sales of $3.2 billion and firms with privately placed debt have sales of $1.0 billion. Both were much larger than firms that relied on bank or equity only, at average sales of $40 million. Thus our sample firms appear to be much closer to the types of firms that issue privately placed debt than those that only use equity or bank debt.

Data on the size of loans in the sample suggest these may be substitutes for either the private placement or, in some cases, public sources of debt. In Figure 3, we provide summary statistics on the sample of large loans we examine. Several differences exist relative to those reported in Carey, et al. (1993). The most notable is that our sample is comprised of much larger loans than those included in the *Quarterly Survey of Terms of Bank Lending to Business.* The median loan size is $36 million as compared to $50 thousand for the *Survey.* The mean loan size is $184 million, with approximately 96 percent of the loans above $1 million in size. Moreover, around 73 percent of the bank loans in our sample are above $10 million in size. This suggests that in terms of size, a large fraction of sample loan contracts could compete with private placements. Additionally, based on percent of issues distributed by size between

FIGURE 2

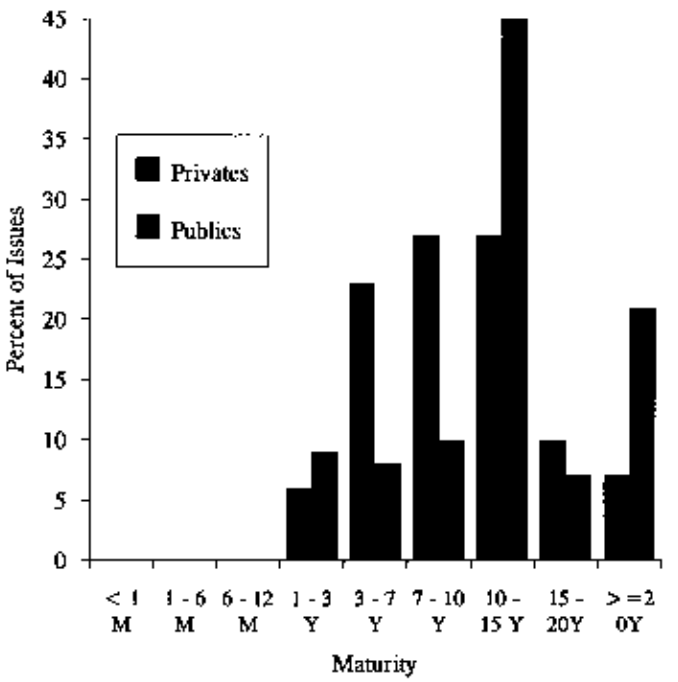
MATURITY DISTRIBUTION OF PRIVATE AND PUBLIC DEBT ISSUES BY PERCENTAGE OF ISSUES, 1989



SOURCE: Carey, et al., 1993

FIGURE 3

SIZE DISTRIBUTION OF LARGE BANK LOANS IN OUR SAMPLE BY PERCENTAGE OF ISSUES, 1989

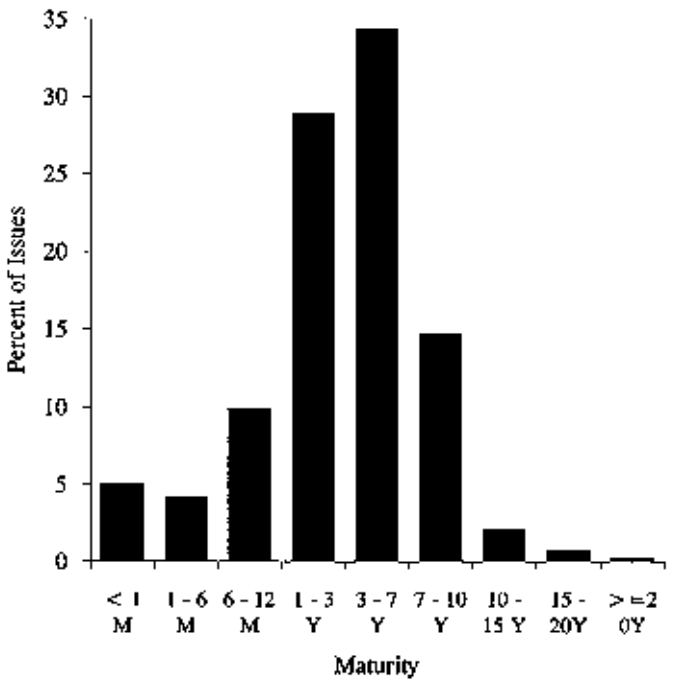


private placements and public issues of debt, as reported in Carey, et al. (1993), many sample loans could be competing with public issues. For our sample, approximately 32 percent of the loans are above $100 million in size and would thus likely be of sufficient size to compete with public issues of debt.

The maturity of the loans in our sample vary widely (see Figure 4), but, on average, they are much longer than those reported in the Fed survey. With an average maturity of 44.86 months, these contracts are shorter than those reported for the private placement market and the public debt market for 1989. Compared to the private placement market studied by Carey, et al. (1993), the average maturity of loans is approximately 45 percent of the average for the private placements. The reported maturities for our sample may understate the true maturity since, for a substantial percentage of revolving credit agreements, the borrower is allowed to convert the outstanding balance of the commitment at maturity to a term loan typically payable over a three-to-five year period. An examination of the loan contracts that take the form of commitments to lend have an average maturity of 44 months. This permits the borrower to extend the maturity to approximately seven years in the commitments with an option to convert to a term loan. Thus our sample includes lending arrangements that are longer, on average, than those reported in previous studies. This difference may reflect the fact that very short-term borrowing from banks may not be outstanding at the time the firm files with the Securities and Exchange Commission.

FIGURE 4

MATURITY DISTRIBUTION OF LARGE BANK LOANS IN OUR SAMPLE BY PERCENTAGE OF ISSUES, 1989



II. CONTRACT FEATURES IN LARGE BANK LOANS

Use of Loan Commitments

Avery and Berger (1990) report that over 70 percent of bank loans are created under commitments to lend. These may take different forms, the most common of which are revolving credit agreements. These arrangements are formal commitments which represent official promises to lend a customer up to a preset amount within a set time period at a predetermined loan rate. In our sample this is the most common type of lending arrangement. We also have loans defined as lines of credit. These contracts are frequently referred to as informal lending contracts in which the lending terms are not set. To be included in our sample, the loan must include the pricing terms. Thus our sample of lines of credit are formal agreements in which pricing and other contract features are negotiated at the beginning of the commitment. Under these lines and revolving credit agreements, the timing and amount borrowed are at the borrower's discretion. The loan rate usually involves a fixed markup over a reference rate such as the prime or LIBOR. Frequently these contracts are for multiple years and are revolving so that funds may be borrowed and repaid multiple times without contract renegotiation. Also the revolving commitments frequently call for the outstanding balance to be converted to a term loan payable over a fixed number of years.

The motivation for purchasing loan commitments is addressed in the May 1988 *Senior Loan Officer Opinion Survey on Bank Lending.* Those surveyed responded that their customers' motivations for borrowing under formal revolving commitments, as opposed to other lending arrangements, were most frequently related to convenience and loan arrangement costs. Additional reasons provided are related to ensuring their access to credit against deterioration in their creditworthiness and against a general credit crunch affecting their access to noncommitment loans. These results emphasize that the nature of a typical bank loan contract differs substantially from that of the private placement and public market alternatives.

Primary use of funds

Since our sample of loans provide data on the purposes of the borrowing, we can gain insights into the primary reasons stated by the firm (in the loan contract) for the borrowing. In Table 1, we provide a list of the frequencies of the primary reason given for a loan. As indicated, a number of reasons exist for the borrowing. Five primary reasons were given for approximately 88 percent of sample loans. These include working capital, debt repayment or consolidation, general corporate purposes, takeover, or leveraged buyout. The most popular reason provided in our 1989 sample was for working capital purposes (approximately 23 percent of sample loans). These loans show that a strong amount of corporate restructuring occurred in industrial firms during 1989. Data on the use of funds for the private placements are not reported by Carey, et al. (1993) for comparison. Data provided in Eckbo (1986) suggest that the primary reasons listed for the issuance of public debt are to refund old debt, finance capital expenditures, and fund general business activities. Thus large bank loans more often are used for working capital, LBO and restructuring. The large percentage of loans used for restructuring may reflect unique aspects of the sample or the wave of corporate restructuring in the late 1980s.

TABLE 1

NUMBER AND PROPORTION OF 1,347 SAMPLE LOANS DISTRIBUTED BY LOAN PURPOSE AND LOAN TYPE

	NUMBER	PROPORTION
PANEL A: BY LOAN PURPOSE		
Working Capital	305	0.227
Debt Repayment/Consolidation	243	0.181
General Corporate Purposes	235	0.175
Takeover Acquisition	218	0.162
Leveraged Buyout	185	0.137
Recapitalization	36	0.027
Security Purchase	29	0.022
Real Estate Loan	24	0.018
Other[a]	72	0.053
PANEL B: BY LOAN TYPE		
Revolving Credit	605	0.449
Term Loan	432	0.321
Other[b]	310	0.230

[a] Other loan purposes include general acquisition program, employee stock ownership plan, commercial paper backup, project finance, stock buyback, and trade credit.
[b] Other loan types include bridge loans, demand loans, letters of credit, notes, multi-option facilities, and subordinated debt.

III. PRICING CONSIDERATIONS

Much of the focus on bank loan pricing has been on the structure of the loan rate. In this paper, we not only focus on the loan rate, but also on an additional component cost of these loans, the various fees. As noted in the study by Berger and Udell (1990), bank loans almost always carry floating rates of interest. However, the procedures for adjusting the rates vary across contracts and have been the subject of much controversy. Other sources of private and public finance traditionally carry fixed rates of interest. Carey, et al. (1993) note that only 2 percent of private placements in 1989 had floating interest rates. They note that private placements of debt, like public bonds, generally have fixed rates. In our sample of large bank loans, the pricing includes many components and it frequently permits the borrower a choice of indices to be used to determine the loan rate.

Fixed-Spread Floating-Index Loans

One of the early explanations for the use of loan commitments was that firms were attempting to lock in the interest rate. However, as noted in the 1970s study by Boltz and Campbell (1978), the use of fixed interest rates in bank lending was on the decline. Today, virtually all large bank loans include interest rates that float over the life of the loan. Today, pricing is most frequently tied to one or more indices. Under this arrangement, the loan is fixed at a spread relative to one or more floating indices. The most popular pricing index for spreads has been the, sometimes controversial, prime rate of interest. Boltz and Campbell (1978) note economists traditionally had difficulty providing explanations for the purpose and role of the prime rate convention. The accepted view until the mid-1960s, when a higher percentage of loans were fixed rate, was that the prime represents the rate charged to the class of customers with the least risk of default. The advent of below-prime pricing and the increased use of a fixed-spread, floating rate have changed the role of this index.

Much of the debate over the role of the prime rate in bank loan pricing has focused on its use as a means of maintaining discretionary control over the contract rates on outstanding floating-rate loans. The inability of borrowers to switch costlessly from one bank to another frequently allows banks to retain their customers and increase

their profits. This view, frequently espoused by the popular press, is that the bank may be able to increase the rate charged to an existing customer as long as the increase does not exceed the borrower's costs of locating and contracting with the new lender.

Boltz and Campbell (1978) note that if the prime rate is a means for maintaining discretionary control over outstanding floating-rate loans, then banks may find it advantageous to leave the prime rate stable to protect the return on existing loans but to use below-prime rates on new loans. This is the rationale for below-prime pricing. Others have predicted that because of competition from direct finance, the prime would be replaced by some rate more responsive to market rates. From Table 2, we can observe how the role of the prime rate has evolved.

In examining Table 2, we find that the usefulness of the prime as a management tool relating the costs of funds to returns on loans continues in the late 1980s. Its role in pricing large bank loans has evolved from that described in earlier studies. In our sample, the prime continues to be the most frequently quoted index in pricing large bank loans. Perhaps due to concerns over the responsiveness of the prime to changing market conditions, many large bank loan contracts include quotes to two or more indices. Under these pricing arrangements, the borrower is permitted to choose, at each pricing interval, the desired index and the associated spread for the next pricing interval. This represents a major innovation in loan pricing. As an additional feature, contracts often permit the borrowing firm to lock both the index and spread for three, six, nine, or twelve month periods.

Approximately 39 percent of the loans in our 1989 sample included a fixed spread to more than one index. Of the loans that contained quotes to more than one index, approximately 27 percent of these contained quotes to two indices and approximately 12 percent contained quotes to

TABLE 2

NUMBER AND PROPORTION OF 1,347 SAMPLE LOANS WITH DIFFERENT PRICING INDICES IN 1989, DISTRIBUTED BY LOAN SIZE

	Loan Size								
	< 250k	250k–1m	1m–10m	10m–25m	25m–100m	100m–250m	250m–500m	> = 500m	Overall
Prime Only	5	25	173	81	84	23	9	14	414
	(.36)	(.61)	(.56)	(.39)	(.24)	(.10)	(.09)	(.14)	(.31)
LIBOR Only	3	2	24	25	53	37	28	22	194
	(.21)	(.05)	(.08)	(.12)	(.15)	(.17)	(.27)	(.22)	(.14)
CD Only			6		2				8
			(.02)		(.01)				(.01)
Prime, LIBOR and CD			5	19	52	45	20	18	159
			(.01)	(.09)	(.14)	(.20)	(.19)	(.18)	(.12)
Prime and LIBOR			17	32	89	56	32	21	247
			(.06)	(.16)	(.25)	(.25)	(.30)	(.21)	(.18)
Prime and CD			6	3					9
			(.02)	(.01)					(.01)
LIBOR and CD			2	7	35	35	9	19	107
			(.01)	(.03)	(.10)	(.16)	(.09)	(.19)	(.08)
Fixed and Other Index[a]	6	14	73	39	41	25	7	4	209
	(.43)	(.34)	(.24)	(.19)	(.11)	(.11)	(.07)	(.04)	(.15)
Total	14	41	306	206	356	221	105	98	1347
	(1.0)	(1.0)	(1.0)	(1.0)	(1.0)	(1.0)	(1.0)	(1.0)	(1.0)

[a] Other indices include T-bill rates, commercial paper rates, cost of funds indices, and federal funds rates.

three indices. For both single and multiple index loans, the prime rate continues to be the most popular pricing index. Approximately 62 percent of the loan contracts include a quoted spread to the bank's prime rate. Among those contracts quoting spreads to a single index, the prime was quoted in approximately 67 percent of these contracts. In the contracts in which a fixed spread was quoted to more than one index, the prime was included as one choice in approximately 80 percent of the contracts. One possible reason is casual evidence that banks offer more flexible early repayment features if the loan is priced relative to the bank's prime rate of interest. The next most popular index for both single and multiple choice contracts is the LIBOR. This is followed in popularity by the bank's CD rate. Much less frequently used indices include the treasury bill rate, the commercial paper rate, the federal funds rate, a cost of funds index, and an index of money market rates.

Among the contracts that quote fixed spreads to more than one index, the most popular is the combination of prime and LIBOR. A close second in popularity is prime, LIBOR, and the bank's CD, followed by a LIBOR and CD combination. An infrequently used combination is a spread to the prime and the bank's CD rate.

In Table 2, we provide summary statistics on loan size stratified by the pricing structure used. As a general rule, the contracts that utilize floating-index pricing relative to only one index are on average of smaller size than those that specify pricing to more than one index. An exception is pricing relative to LIBOR only. These contracts are on average much larger than the contracts that specify pricing relative to prime, CD, or any of the other indices. The same cannot be said of the contracts specifying more than one index. The largest of this class of loans are those that specify pricing relative to the LIBOR, but do not include the option for the borrower to price relative to the bank's prime rate.

Other Fees in Loan Pricing

The loan rate is not the only component in pricing sample loans. A typical bank loan commitment provides the borrower substantial flexibility in determining the quantity of borrowing during the life of the contract. To price these contracts so as to receive an adequate return on capital, the banks use a variety of fees. This appears to be in contrast with both private placements and public debt issues. The rationales for the use of fees in bank lending traditionally have focused on the presence of informational asymmetries related to the credit risk of the borrower. Specifically, James (1987) and Thakor and Udell (1987) develop models in which borrowers can be induced to reveal their credit risk class by the choice of loan rate and the fee structure they select. Berlin (1989) also describes a similar use of a combination of fees and loan rates to control borrower's behavior.

In Table 3, we provide a list of the most frequently used fees in the sample. In addition to the loan spread relative to prime (the most frequently used index, averaging 11 percent in 1989), two fees are considered the most common; the first is an up-front fee based on the total amount of the loan or commitment. A close second is a fee on the unused portion of the loan commitment. The up-front fee is charged at the beginning of the loan arrangement; it is charged in approximately 45 percent of sample loan contracts with an average fee of 105 basis points of the total amount of the contract. The next most frequently reported fee, an annual fee on the unused balance of the loan, is charged in approximately 44 percent of sample loan contracts. The average amount of this fee is 41 basis points of the unused balance. The third most common fee is an annual fee based on the total amount of the loan contract. This fee appears in approximately 22 percent of the sample loans and averages 16 basis points in those contracts in which it appears. In approximately six percent of the contracts, a cancellation fee is charged for early termination of the contract, this fee averages 53 basis points of the loan contract. Also included in approximately 12 percent of the contracts is a letter of credit fee equal to approximately 143 basis points.

As noted above, studies have attempted to explain the use of fees as part of the pricing structure of loan contracts. These explanations have focused on the combination of fees and loan rates to elicit information about the likelihood of default for a particular borrower. In Thakor and Udell (1987), borrowers are shown to reveal their default risk characteristics based on their choice of contract terms. Alternatively, in Berlin (1987), borrowers are shown to self-select across contract types based on their probability of borrowing. Both of these models suggest that the use of different types of fees is expected to vary over the type of loan contract. For example, Berlin (1987) suggests that loan fees are designed to compensate the bank for the quantity risk and the credit risk associated with the loan. Clearly the quantity risk is larger under commitments to lend than under traditional or spot lending. In Table 3, we separate sample loans into revolving commitments, lines of credit, and term loans. As can be seen, the use of all types of fees is more frequent for revolving loan commitments than for either term loans or for lines of credit. The fact that lines of credit typically do not specify the fees in the contract likely reflects the lack of formal pricing in these arrangements.

The use of up-front fees are slightly more prevalent in term loans than revolving credit agreements. In term loans where these fees are charged, the fees are, on average, approximately 1.2 times as large as the average of this fee re-

TABLE 3

PROPORTIONS AND AVERAGE BASIS POINTS OF FEES USED IN THE SAMPLE OF 1,347 LOANS, DISTRIBUTED BY TYPES OF LOANS

TYPES OF LOANS	TYPES OF FEES				
	Up-front	Annual	Unused Balance	Early Cancellation	Letter of Credit
Revolving Loan Commitments					
Proportions	0.46	0.38	0.69	0.06	0.18
Average Basis Points	88	18	40	55	147
Term Loans					
Proportions	0.47	0.20	0.24	0.05	0.02
Average Basis Points	105	11	44	52	112
Line of Credit					
Proportions	0.21	0.13	0.21	0	0.11
Average Basis Points	55	38	33	—	106
Other Types of Loans[a]					
Proportions	0.43	0.15	0.25	0.07	0.13
Average Basis Points	148	20	44	51	142
Overall Sample					
Proportions	0.45	0.22	0.44	0.06	0.12
Average Basis Points	105	16	41	53	143

[a] Other types of loans include bridge loans, demand loans, letters of credit, notes, multi-option facilities, and subordinated debt.

ported in revolving credit agreements. The most frequently included fee in revolving credit agreements is an annual fee on the unused balance of the commitment. This fee is charged in approximately 69 percent of all revolving credit agreements in our sample. This fee, and the less frequently used annual fee on the total amount of the line, suggests the need for continuing fees associated with this source of potential funding during the life of the contract. These suggest a relatively high cost to the quantity uncertainty associated with these contracts. Early cancellation fees appear in about the same percentage in commitments as in term loans. Letter of credit fees are reported in approximately 18 percent of loan commitments and in only 2.3 percent of term loans.

Overall, these results suggest that substantial heterogeneity exists in the pricing structure of loan contracts. This pricing structure varies across contract types in a fashion suggesting customized contract features. Unlike the private placements and public debt samples examined by Carey, et al. (1993), virtually all loans in our sample are floating-rate loans. Additionally, the pricing structure appears to reflect the complexity of the package of financing options the bank provides to the borrowing firm.

IV. COVENANTS TO PROTECT LENDERS

It is frequently suggested that, like other debt contracts, bank loans contain restrictions designed to protect the lender from the borrower behaving in an opportunistic way. Smith and Warner (1979) note that in public debt contracts, covenants usually take the form of restrictions regarding cash distributions, claim dilution, asset substitution, and underinvestment. Each of these may represent opportunistic behavior that can benefit shareholders at debtholders' expense.

In this section, we look at the covenants and collateral requirements that appear in the sample of loan contracts. Carey, et al. (1993) suggest that covenants tend to be used

more frequently in private placements and are more restrictive than in public debt issues. Compared to bank loans, covenants are less frequently used in private placements and they are less restrictive. Due to the private nature of bank loan contracts, as with private placements, a lack of data has resulted in limited analysis of covenants in these contracts. In general, Carey et al. (1993) note that participants in private placement markets indicate that bank loans contain roughly the same types of covenants as found in the private placement market, with two differences. First, financial covenants in bank loans are typically maintenance covenants, while most covenants in private placements are incurrence covenants. With maintenance covenants, the criteria set forth in the agreement, such as minimum ratios of assets to liabilities, must be met on a continuing basis. With incurrence covenants, default is triggered if an event, such as issuing public debt or equity, occurs at any time during the contract. The second difference is that the covenants of bank loans tend to be set at levels that are more likely to be binding during the life of the loan. They report that bank loan covenants tend to reflect a different lending philosophy than private placement covenants. Banks are argued to take an approach that emphasizes liquidity and/or working capital. In Table 4 we report the proportion of our sample of bank loans segmented by loan size that contain one or more of the most frequently discussed covenants.

The Role of Collateral

One of the most common covenants to protect the lender from losses associated with default risk is collateral. Berger and Udell (1990) find evidence that for a large sample of relatively small (median $50,000) business loans, approximately 70 percent were collateralized. Kwan and Carleton (1995) report that for a large sample of private placements, approximately one-third were secured. Carey, et al. (1993) note that both of these percentages are higher than for publicly issued bonds.

The traditional explanations for the use of collateral is that it reduces potential losses related to default. Smith and Warner (1979) note that this represents one of the most effective ways of combating the possibility of substituting more risky assets for less risky. Consistent with this, Berger and Udell (1990,1993) find evidence that riskier borrowers are more likely to pledge collateral. Loans in our sample of loans are much larger on average than those examined in earlier studies. Approximately 45 percent of the loans in our sample pledge collateral.

Earlier studies of the incidence of collateral suggest the presence of collateral is a positive function of default risk (see Berger and Udell, 1990, and Scott and Smith, 1986). Scott and Smith (1986) examine a sample of small business loans and find that the presence of security is a negative function of loan size and loan maturity. Berger and Udell (1990) find evidence that riskier loans are more likely to be secured and the commitments to lend tend to be less risky. In our sample, collateral is pledged in approximately 60 percent of loans used to finance takeovers and LBOs. This compares with approximately 45 percent for the entire sample. Highly leveraged corporate restructuring loans are frequently considered to carry a high level of default risk. This suggests that for our sample of large business loans, the presence of collateral is a positive function of default risk.

Other Covenants in Bank Loans

In addition to frequently requiring collateral, bank loans include additional restrictions on borrower behavior. Covenants in bank loans are either negative or affirmative. Negative covenants restrict certain actions by the borrower. Most of the negative covenants in bank loans take the form of financial covenants. Affirmative covenants require a borrower to meet certain standards such as discharging contractual obligations and providing information at regular intervals. The covenants reported for the sample of large loans we are examining are generally negative and are based on financial variables.

Historically, compensating balances have been used frequently as covenants in bank lending arrangements. Under these arrangements, the borrowing firm is required to maintain a compensating balance at the lending bank equal to a small percentage of the loan balance during the life of the loan. In our sample of relatively large loans, required compensating balances appear in only 1.8 percent of loan agreements. Thus, as shown in Table 4, in the market for relatively large bank loans, these covenants are largely missing. This may reflect the fact that our sample consists of relatively large borrowers and the trend to the reduced importance of this pricing feature in bank lending.

The most commonly reported negative financial covenant is the restriction on the debt ratio of the borrowing firm. The covenants related to this ratio appear in slightly more than 28 percent of sample loans. The next most frequently reported is a solvency covenant which appears in approximately 20 percent of loans. This is followed by an interest coverage ratio covenant in approximately 16 percent of sample loans. Also reported in approximately 16 percent of loans is a requirement that the borrower hedge interest rates through either futures or swaps. The next most frequently reported covenants are the maintenance of

TABLE 4

PROPORTION OF LOANS WITH COLLATERAL REQUIREMENTS AND COVENANT RESTRICTIONS, DISTRIBUTED BY LOAN SIZE

TYPES OF LOANS	LOAN SIZE								
	< 50k	50k–250k	250k–1m	1m–10m	10m–25m	25m–100m	100m–250m	250m–500m	> = 500m
Which are Secured	.50	.58	.63	.64	.48	.43	.38	.53	.38
With Solvency Covenants	—	.08	.05	.24	.23	.24	.16	.12	.02
With Debt Ratio Covenants	—	—	.15	.33	.31	.29	.28	.24	.18
With Interest Coverage Covenants	—	—	—	.11	.21	.19	.22	.17	.16
With Profit/Sales Covenants	—	—	—	.02	.01	—	.01	—	.08
With Agreement that Calls for Hedging the Interest Rate	—	—	—	.03	.11	.18	.25	.30	.36
With Compensating Balance	—	—	—	—	.01	.01	.04	.05	.06

a minimum borrowing base of assets (approximately 10 percent of contracts) and a profitability or sales constraint in approximately 1.2 percent of contracts.

These findings provide evidence consistent with the analysis of covenants for private placements in Carey, et al. (1993). They report that market participants suggest two differences between covenants in private placements and bank loans. First, financial covenants in bank loans are typically maintenance covenants, while most covenants in private placements are incurrence covenants. We find that most of the covenants reported for our large bank loans are maintenance covenants. They also suggest that bank covenants are set to restrict borrowers' behavior more closely. We have no direct evidence of this. However, a substantial percentage of sample loans include covenants that are set to be relaxed during the life of the loan. For example, the borrower may be required to maintain a long-term debt to equity ratio of .5 during the first year and .75 in subsequent years. In our sample, covenants are permitted to change in approximately 22 percent of the loan agreements. Consistent with the statement of Carey, et al. (1993) that bank loan covenants are tight, we find in approximately 22 percent of loan agreements that covenants are permitted to be relaxed in stages during the life of the loan. A related feature of many of the loan agreements is that the loan contract calls for the loan rate to reflect a violation in the covenants. For instance, the contract may call for the loan rate to increase the spread from 100 basis points over prime to 200 basis points over prime if the borrower violates the total debt to net worth constraint. Assuming that incorporating such contract features is costly, the fact that violations are explicitly priced may indicate that they are seen as more likely to be binding. This is consistent with the proposition that bank loan covenants are normally tight.

Overall, our results suggest that a wide variety of covenants are used in large bank loans and that these covenants are set very tight. The covenants tend to be maintenance covenants and focus on the liquidity and leverage of the borrowing firm.

V. SUMMARY AND CONCLUSIONS

The evidence in this paper represents the first attempt at comparing the characteristics of large bank loans with private placements of debt and public debt issues. The motivation for this comparison has been to examine the unique aspects of large bank loans that encourage firms to continue this source of finance even though they have access to the private placement market, and in many cases, the public debt markets. By examining the characteristics of a sample of large bank loans, we are able to gain insights into this form of corporate borrowing compared to private placements and public debt issues. Among the major differences in these sources of corporate finance are that bank loan agreements are approximately one-half the maturity of private placements and one-third that of public bonds. Virtually all bank loan agreements are fixed-spread, floating-index loans. Most are in the form of commitments to

lend that permit the borrower flexibility in deciding on the timing and amount of borrowing.

Within these complex lending arrangements, we find that the prime continues to be the most popular index for fixed-spread floating-rate loans. However, a majority of the loans quote a fixed spread to more than one index. Additionally, in modern loan contracts, the loan rate is only one part of the pricing structure. Loans frequently include a variety of additional fees. These include one time fees, annual fees, cancellation fees, and in commitments to lend, fees on the unused portion of the credit agreement.

Evidence related to covenants in large bank loans indicates wide variety in the types of covenants used. Additionally, covenants often change automatically during the life of the contract and it is not uncommon for loan spreads to increase with covenant violation. Pricing covenant violations ex ante suggests that they are likely to become binding and perhaps be violated. This suggests that flexibility in contract features and the ability to renegotiate are important features in demand for large bank loans. These findings are consistent with the monitoring role of banks as unique sources of borrowing for businesses.

REFERENCES

Avery, R. B., and A. Berger. 1990. "Loan Commitments and Bank Risk Exposure." Federal Reserve Board working paper, pp. 1–21.

Berger, A., and G. Udell. 1990. "Collateral, Loan Quality, and Bank Risk." *Journal of Monetary Economics* 25, pp. 21–42.

_____, and _____. 1993. "Lines of Credit, Collateral and Relationship Lending in Small Firm Finance." New York University working paper.

Berlin, M. 1987. "Loan Commitments; Insurance Contracts in a Risky World." Federal Reserve Bank of Philadelphia *Business Review,* pp. 3–12.

_____. 1991. "Loan Rescheduling and the Size of the Banking Sector." New York University working paper.

Bhattacharya, S., and A. Thakor. 1993. "Contemporary Banking Theory." *Journal of Financial Intermediation* 3, pp. 2–50.

Brady, T. 1985. "Changes in Loan Pricing and Business Lending at Commercial Banks." Federal Reserve Bulletin pp. 1–13.

Boltz, P., and T. Campbell. 1978. "Recent Innovations in Bank Loan Contracting." Federal Reserve Board of Governors Staff Paper.

Carey, M., S. Prowse, J. Rea, and G. Udell. 1993. "The Economics of Private Placements: A New Look." *Financial Markets,Institutions & Instruments* 2 (3) pp. 1–66.

Deli, D. 1995. "The Role of Credit Agreements in Corporate Financial Policy: An Empirical Investigation." Arizona State University working paper.

Diamond, D.W. 1984. "Financial Intermediation and Delegated Monitoring." *Review of Economic Studies* 51, pp. 393–414.

Eckbo, E. 1986. "Valuation Effects of Corporate Debt Offerings." *Journal of Financial Economics* 15, pp. 119–151.

Fama, E. 1985. "What's Special About Banks?" *Journal of Monetary Economics* 15, pp. 29–39.

James, C. 1987. "Some Evidence on the Uniqueness of Bank Loans." *Journal of Financial Economics* 19, pp. 217–235.

Kwan, S., and W. Carleton. 1995. "The Role of Private Placement Debts in Corporate Finance." Federal Reserve Bank of San Francisco working paper, forthcoming.

Scott, J., and T. Smith. 1986. "The Effect of the Bankruptcy Reform Act of 1978 on Small Business Loan Pricing." *Journal of Financial Economics* 16, pp. 119–140.

Smith, C., and J. Warner. 1979. "On Financial Contracting: An Analysis of Bond Covenants." *Journal of Financial Economics* 7, pp. 116–161.

Thakor, A., and G. Udell. 1987. "An Economic Rationale for the Pricing Structure of Bank Loan Commitments." *Journal of Banking and Finance* 11, pp. 271–289.

WORKING PAPERS

RESEARCH DEPARTMENT, FEDERAL RESERVE BANK OF SAN FRANCISCO

95-02 Federal Reserve Interest Rate Targeting, Rational Expectations, and the Term Structure
GLENN D. RUDEBUSCH

95-03 The Temporal Relationship between Individual Stocks and Individual Bonds
SIMON H. KWAN

95-04* Speculative Attacks on Pegged Exchange Rates: An Empirical Exploration with Special Reference to the European Monetary System
BARRY EICHENGREEN, ANDREW K. ROSE, AND CHARLES WYPLOSZ

95-05* Is Monetary Policy Becoming Less Effective?
RAY C. FAIR

95-06* A Theory of North-South Customs Unions
EDUARDO FERNANDEZ-ARIAS AND MARK M. SPIEGEL

95-07* The Monetary Transmission Mechanism: An Empirical Framework
JOHN B. TAYLOR

95-08* The Exchange Rate in Monetary Policy
MAURICE OBSTFELD AND KENNETH ROGOFF

95-09* Measuring Monetary Policy
BEN S. BERNANKE AND ILIAN MIHOV

95-10 Does State Economic Development Spending Increase Manufacturing Employment?
CHARLES A. M. DE BARTOLOME AND MARK M. SPIEGEL

95-11 Regime Switching in the Dynamic Relationship between the Federal Funds Rate and Nonborrowed Reserves
CHAN HUH

95-12 An Analysis of Inefficiencies in Banking: A Stochastic Cost Frontier Approach
SIMON H. KWAN

95-13 The Role of Private Placement Debt Issues in Corporate Finance
SIMON H. KWAN

95-14 Signal Extraction and the Propogation of Business Cycles
KENNETH KASA

Working papers are available free of charge from:
Federal Reserve Bank of San Francisco
Public Information Department
P.O. Box 7702
San Francisco, CA 94120
Fax: 415-974-3341

* These working papers were not edited by the Federal Reserve Bank of San Francisco.