The Case for Junk Bonds

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This paper provides a defense of a controversial type of financing, junk bonds. It does not provide a comprehensive discussion of the opposing view. The author is grateful to Jessica Laxman, Adam Rosen, and Simeon Hyman for research assistance.

An important financial innovation of the 1980s was the emergence of original-issue junk bonds, securities of below investment grade with high initial yields to maturity. Such securities are not totally new. Fallen angels, securities that have lost their investment-grade rating, have been familiar since the inception of the corporate bond market because not all firms live up to the initial expectations of investors. Before the establishment of the original-issue junk bond market, firms that did not qualify initially as investment-grade borrowers could not issue long-term bonds. In the past these firms relied almost exclusively on short-term bank loans for debt financing, but now many such enterprises can obtain long-term financing in national credit markets.

Junk bonds are an extension of a trend to substitute publicly traded securities for bank loans, a process called disintermediation. Investment-grade firms, for example, substituted commercial paper for bank loans. As well-established firms found their credit ratings equaling or exceeding those of commercial banks, they were able to raise funds more economically by issuing instruments directly in the open market. Over time, such borrowers have become less dependent on depository institutions as a source of funds. While below-investment-grade firms have lower credit ratings than banks, by placing tradable securities directly with investors they can obtain debt with longer maturities than commonly available from banks.

Junk bonds nevertheless are under attack, with opponents arguing they facilitate excessive leverage. While junk bonds have substituted for some bank lending, both sources of debt financing have grown rapidly during the 1980s as firms have become more leveraged. Greater leverage reduces a firm's tax burden because of the tax deductibility of interest payments, but it also increases the probability of default. The recent increase in large corporate bankruptcies stems in part from firms' choice of riskier capital structure.

In response to the problems created by defaults or near defaults of highly leveraged firms, savings and loans are now prohibited from holding junk bonds. Bills before Congress would also limit other financial intermediaries' investments in junk bonds and eliminate corporate tax deductibility of interest payments on junk bonds. This article contends that such asset restrictions may be counterproductive, limiting access to public credit markets for below-investment-grade firms without reducing their demand for debt. As a result, they will turn to substitutes for junk bonds, such as bank loans, to meet their financing needs. This may limit the firms' ability to raise long-term funds, since bank loans generally have short maturities.

The first section of this article shows that junk bonds are a natural extension of the disintermediation occurring in other financial markets. The second section describes the evolution of the junk bond market. The third section argues that bank loans are close substitutes for junk bonds; therefore, regulating junk bonds alone will not prevent highly leveraged transactions. The final section concludes that further regulation of junk bonds could limit the ability of below-investment-grade firms to raise long-term funds.

I. Changing Corporate Borrowing Patterns

The major sources of debt financing for businesses are corporate bonds, commercial paper and bank loans. These instruments differ in maturity, number of borrowers, and quality of borrowers. While the corporate bond market and the commercial paper market have been major sources of debt financing, until the establishment of the junk bond market they were primarily available to large, creditworthy companies. In 1988, about 1,000 investment-grade bonds were issued by nonfinancial corporations, with an average size of $44 million.[1] Similarly, the commercial paper market generally provides large denomination funds for firms with investment-grade ratings.

Most small and mid-sized firms are not large enough or financially strong enough to issue investment-grade debt and, therefore, depend on commercial banks for their debt financing. Table 1 shows the terms of commercial and industrial loans extended by commercial banks during the second week of November 1989, as surveyed by the Federal Reserve System.[2] As estimated from the survey, commercial banks held approximately 142,000 loans with less than one year to maturity with an average size of $311,000, and approximately 20,000 loans with more than one year to maturity and an average size of $260,000. Thus, bank loans are generally smaller and of shorter maturity than corporate bond issues.

Only 12 percent of the commercial and industrial loans surveyed by the Federal Reserve had more than one year to maturity. Bank loans are predominantly short-term floating-rate instruments or fixed-rate loans with short maturities (the average fixed-rate short-term loan was only 30 days) because most bank liabilities are also both floating-rate and short-term. Banks can minimize their interest rate risk by issuing loans with characteristics that match those of their liabilities. While this strategy minimizes interest rate risk for banks, it increases the risks to borrowers who must fund long-term projects with short-term loans.[3]

Table 1
Terms of Lending at Commercial Banks
Survey Conducted November 6–10, 1989

	Amount (Billions of Dollars)	Average Size (Thousands of Dollars)	Weighted Average Maturity
Short-Term	44.0	311	53 Days
Fixed	24.8	554	30 Days
Floating	19.3	199	117 Days
Long-Term	5.2	260	43 Months
Fixed	.9	114	49 Months
Floating	4.3	359	41 Months

Source: *Federal Reserve Bulletin*, March 1990.

Disintermediation

Before the development of the commercial paper market, most short-term funding for firms was provided by commercial banks. For firms that qualify for investment-grade ratings, issuing commercial paper has become a competitive alternative to bank financing. Firms have increasingly bypassed banks, with the commercial paper market expanding from $25 billion in 1979 to $85 billion by 1988. Banks have lost much of this business because they do not have a competitive advantage in providing funds, as commercial paper rates paid by investment-grade firms are virtually the same as certificate of deposit rates paid by banks. Banks specialize in evaluating and monitoring credit risk, a service not highly valued for firms where the risk of default is very low. For firms with the highest credit rating, investors are willing to supply funds at rates at or below those of banks.

Disintermediation has not been confined to corporate bonds and commercial paper issued by the most creditworthy firms. Mortgages, student loans, and consumer loans are frequently repackaged and issued directly to financial market participants. Banks have even promoted repackaging of financial assets by developing an active loan sale market, wherein commercial and industrial loans are sold without recourse to other banks in a manner similar to the underwriting services provided by investment banks. Although most of these loans have been short-term loans to investment-grade firms, they have included loans issued to firms with below-investment-grade ratings.

With so many borrowers seeking to extend their sources of credit beyond banks, the trend toward disintermediation naturally expanded to firms that sought long-term financing but did not qualify for investment-grade ratings. The breaking down of traditional banking relationships also encouraged the substitution of junk bonds for bank loans. Banks typically have provided funds to below investment-grade firms, because banks specialized in gathering and analyzing credit risks of firms. Banks frequently supplemented their lending services with cash management, payroll, and other financial services that solidified the banking relationships. Greater competition among financial intermediaries and a trend towards separate pricing of banking services have enabled firms to unbundle these activities. Thus, firms could seek long-term financing from other sources without sacrificing the banking services that firms required.

Changes in the Composition of Corporate Debt

The changing composition of corporate financing is shown in table 2. Two major trends appear in the table. First, all forms of debt financing have grown rapidly. Second, disintermediation has been important: commercial paper and high-yield debt have grown more rapidly than bank loans to businesses.

As investment-grade firms successfully bypassed banks for both their short-term and their long-term financing needs, it was inevitable that firms with lower ratings should try to do the same. While some below-investment-grade firms have issued commercial paper, most still obtain their financing from banks. However, the long-term financing needs of below-investment-grade firms have not been met by banks. Since 1979, these firms have increasingly turned to long-term financing through the high-yield bond market.

Evolution of the Junk Bond Market

The junk bond market has followed the trends occurring in bank financing. During the past decade banks have increasingly financed highly leveraged transactions such as takeovers and recapitalizations. By the end of the 1980s, these transactions represented a significant portion of commercial and industrial loans for some banks.

Table 2
Corporate Debt Outstanding

	1979		1988	
	Billions of Dollars	Percent	Billions of Dollars	Percent
Investment-Grade Corporate Bonds and Private Placements	310	55	702	48
Commercial Paper	25	4	85	6
High-Yield Bonds	28	5	183	12
Bank Loans	204	36	502	34

Source: Board of Governors of the Federal Reserve System, *Flow of Funds.*

Most junk bonds issued in 1979 financed working capital, in place of bank loans. Table 3 describes the junk bonds issued in 1979, the first year with a significant number of new issues. Of the ninety-three issues, we were able to examine prospectuses for fifty-three. An analysis of the prospectuses in conjunction with news releases and other financial reports showed that only 11 percent of the issues (10 percent of dollar value) was used exclusively for acquisitions. Proceeds of most issues were used for working capital, consistent with the trend toward greater securitization in financial markets.

In 1988, junk bond financing of acquisitions was much greater. Of the $23 billion in junk bonds categorized in this study, only 20 percent of the new issues (9 percent of dollar value) was not planned for use in acquisition financing, while 64 percent was to be used exclusively for new acquisitions or to retire debt from previous acquisitions. The number of issues to be used for investments not related to acquisitions actually dropped. The amount of proceeds increased, however, reflecting the larger average size of junk bond issues. Most of the largest issuers in 1988 used the proceeds to finance takeovers.

Table 3
Amount and Purpose of Junk Bond Issues, 1979 and 1988

	Number of Issues	Amount (Millions of Dollars)
1979 Junk Bond Issues		
All Junk Bonds	93	2,653
All Junk Bonds Categorized	53	1,733
Percent of Category:		
Proceeds used exclusively to finance takeovers	11%	10%
Portion of proceeds to finance takeover or possible future takeovers	11%	25%
Proceeds not used to finance takeovers	78%	65%
1988 Junk Bond Issues		
All Junk Bonds	223	39,182
All Junk Bonds Categorized	137	22,858
Percent of Category:		
Proceeds used exclusively to finance takeovers	64%	76%
Portion of proceeds to finance takeover or possible future takeovers	16%	15%
Proceeds not used to finance takeovers	20%	9%

Source: IDD Information Services and company prospectuses.

Junk bonds are attractive as a financing vehicle for takeovers. Bank loans frequently have stringent underwriting standards and collateralization requirements that junk bond investors may not require if they receive a higher return. National banks and many state-chartered banks are not permitted to hold equity positions in firms, while junk bond investors may receive equity positions that enable them to share the benefits of successful ventures. To eliminate this advantage, many bank holding companies acquire equity and mezzanine financing similar to junk bonds in their nonbank subsidiaries, enabling the holding company to maintain a stake in all tiers of the transaction. Banks traditionally have been unwilling to acquire a takeover loan that represents a significant portion of their capital. However, as will be discussed later, banks are becoming more willing and able to finance takeovers.

Credit Rating Deterioration

Both the credit rating of junk bond issues and their importance to takeovers have changed substantially from 1979. Table 4 shows Standard & Poor's initial credit ratings for junk bonds issued in 1979 and in 1988: BB, B, or CCC, with BB the rating for a junk bond with the lowest probability of default and CCC the rating for a junk bond with the highest probability of default.

The proportion of rated junk bonds issued in 1979 in the higher rating categories is greater than for junk bonds issued in 1988. In 1979 only 5 percent of the total value of junk bonds issued had the lowest rating, CCC, and those issues were smaller than the average issue. None of the categorized issues whose proceeds were used to finance takeovers in 1979 had a CCC rating. In contrast, 17 percent of the total value of junk bonds issued in 1988 had the lowest credit rating and they were the largest issues. All five of the largest issues in 1988 were used to finance takeovers or restructuring to forestall a takeover attempt. Where the proceeds could be categorized, 25 percent of the issues devoted exclusively to finance takeovers had a CCC rating, while only 9 percent of the issues not used in takeovers had a CCC rating. Furthermore, securities in the largest category, B, are now of

Table 4
Standard & Poor's Initial Ratings for Junk Bonds, 1979 and 1988

Category	Amount (Millions of Dollars)	S & P Rating (Percent) BB	B	CCC	Not Rated
1979 Junk Bond Issues					
All Junk Bonds	2,652.5	14.1	43.3	4.9	37.7
All Junk Bonds Categorized	1,732.8	16.1	32.5	7.6	43.8
Proceeds used exclusively to finance takeovers	165	24.2	54.5		21.2
Portion of proceeds used to finance takeovers or possible future takeovers	425	14.1	37.6		48.2
Proceeds not used to finance takeovers	1,142.8	15.7	27.4	11.5	45.5
1988 Junk Bond Issues					
All Junk Bonds	39,181.5	8.4	66.7	17.4	7.5
All Junk Bonds Categorized	22,858.2	8.3	64.9	21.7	5.0
Proceeds used exclusively to finance takeovers	17,390.7	6.8	64.3	24.6	4.4
Portion of proceeds used to finance takeovers or possible future takeovers	3,393.7	5.9	77.0	14.7	2.4
Proceeds not used to finance takeovers	2,073.8	25.3	50.6	9.4	14.7

Source: IDD Information Services and company prospectuses.

lower quality. Since 1982, Standard & Poor's has augmented the general rating with + or − to differentiate issues further. Since 1982 an increasing share of the B category has been designated B−. The higher proportion of securities with a CCC or B− rating shows that the rating agencies believe that the quality of original junk bond issues has been declining.

Given the lower credit ratings for recently issued junk bonds, one can probably expect a default rate higher than in the 1979 sample, particularly if the economy does not continue to perform as well as it has over the past ten years. A significant proportion of junk bonds issued in 1979 defaulted, despite their better initial credit ratings (table 5). Of the issues whose status could be verified, 23 percent have defaulted or have been converted under distressed conditions. This is consistent with findings by Asquith, Mullins and Wolff (1989), who analyzed a smaller sample of junk bonds from 1979. None of the bonds initially used to finance takeovers defaulted, however. Table 6 shows the defaults, classified by initial rating. No clear relationship emerges between initial ratings and defaults, with bonds with the lowest rating having the lowest default rates. In a larger sample, however, lower initial ratings might indicate a higher probability of default.

The trend toward more acquisition-related financing and lower credit standards is not unique to junk bonds. Banks have also become increasingly aggressive lenders for takeovers and restructuring. The number of highly leveraged transactions financed by banks, and the number of highly leveraged loans past due, have been increasing. Despite the loss potential of highly leveraged debt, both for holders of junk bonds and for banks, these loans can be profitable. Defaults do not mean that all the principal is lost, only that the timely payment of interest is not made. Most troubled firms restructure, resulting in some losses to debt holders but still paying a significant proportion of the principal value. When creditors cannot reach agreement, the firm is forced into bankruptcy. Altman (1989) estimates that even in bankruptcy junk bonds sell for 45 percent of their face value one month after default. Banks that

Table 5
Status of Junk Bond Issues of 1979, Classified by Use

	Still Outstanding	Called	Converted or Defaulted	Status Not Verified
Total Number of Junk Bond Issues	27	29	17	20
Issues Categorized	17	17	6	13
Proceeds used exclusively to finance takeovers	4	0	0	2
Portion of proceeds used to finance takeovers	1	1	1	3
Proceeds not used to finance takeovers	12	16	5	8

Source: IDD Information Services and company prospectuses.

hold more senior debt positions would expect substantially higher payments from firms in default. Despite defaults, with the very high interest rates that these loans and junk bonds pay, lenders that carefully monitor the risks of their portfolios can earn high profits.

III. Regulating Junk Bonds

Recent legislation prohibits financial intermediaries such as national banks and savings and loans from holding junk bonds after an adjustment period to liquidate existing positions. Proposals to eliminate the tax deductibility of interest paid on junk bonds would further discourage the issuance of these securities. These asset restrictions have been focused on junk bonds because of their use in highly leveraged transactions and their association with takeovers, particularly hostile takeovers. Alternative debt financing is available, however, and few highly leveraged transactions will be prevented by legislation narrowly focused to discourage investors from holding junk bonds. This section argues that such asset restrictions are not effective because bank loans are close substitutes for junk bonds and these restrictions do not alter the incentives firms have to assume more leverage.

The importance of junk bonds for financing takeovers is often overstated. Table 7 provides the number and value of junk bond issues, corporate acquisitions and hostile takeovers from 1985 to 1988. The total value of junk bonds issued includes those issued for other purposes as well as those issued for takeovers and restructuring. The value of acquisitions includes publicly announced takeover values as ascertained by *Mergerstat Review*. The table overstates the role of junk bonds in acquisitions, since other

Table 6
Status of Junk Bond Issues of 1979, Classified by Initial S & P Credit Rating

Initial Credit Rating	Still Outstanding	Called	Converted or Defaulted	Status Not Verified
BB	4	3	2	0
B	15	10	8	8
CCC	1	4	1	2
NR	7	12	6	10
TOTAL	27	29	17	20

Source: IDD Information Services.

Table 7
Number and Value of Junk Bond Issues, Net Merger Announcements, and Hostile Takeovers

	Junk Bonds			Net Merger Announcements		Successful Hostile Takeovers	
Year	Number of Junk Issuers	Number of Junk Issues	Value (Millions of Dollars)	Number	Value (Millions of Dollars)	Number	Value (Millions of Dollars)
1988	169	223	39,181.5	2,258	246,875.1	27	38,474.4
1987	263	321	37,801.2	2,032	163,686.3	18	18,630.3
1986	369	442	45,604.2	3,336	173,136.9	15	7,613.7
1985	257	328	20,694.5	3,001	179,767.5	14	8,232.3

Source: *Mergerstat Review*, IDD Information Services.

junk bonds are included and those acquisitions whose value could not be ascertained are not included. In 1988, net merger announcements totaled $247 billion, while junk bonds issued for all purposes totaled $39 billion: the value of junk bonds relative to the total value of acquisitions had dropped to 16 percent in 1988 from a high of 26 percent in 1986.[4] The data suggest that most takeovers are financed by sources other than junk bonds.

Acquisitions are financed mostly by bank loans, internal funds and investment-grade debt. Of the ten most active acquirers from 1978 through 1985 (*Mergerstat Review* 1986), one firm had no debt outstanding and the other nine all qualified for investment-grade rating. These acquirers included Merrill Lynch & Co., General Electric, and W.R. Grace & Co. Junk bond restrictions will not diminish other important sources of acquisition financing, such as bank lending or investment-grade debt issues.

Hostile Takeovers and Junk Bonds

Successful hostile takeovers comprise less than 1 percent of the total number of takeovers, yet they have been the source of much policy debate. They are also frequently associated with junk bonds, even though hostile takeovers are usually financed by other sources of funds.[5] Table 8 shows the initial financing for nineteen successful hostile takeovers from 1985 through 1987 (40 percent of the successful hostile takeovers during this period) for which financial information was available. Sixteen of the nineteen hostile acquisitions used no junk bonds initially. Investment-grade bonds and internal funds were used in seven. The primary source of initial financing was bank loans, used in thirteen of the cases and accounting for over 50 percent of the total amount raised for initial financing. Recently the importance of bank loans has increased further as a number of large takeovers have been structured to avoid using junk financing. As was shown in table 7, the total value of newly issued junk bonds in 1988 was $6 billion less than in 1986, while the value of acquisitions in 1988 was $73 billion more than in 1986.

In the case of the hostile takeovers shown in table 8, many of the bank loans were liquidated quickly, either through asset sales or issuance of new debt or equity. At the end of one year, however, junk bonds and non-rated debt accounted for only 20 percent of the initial price of the successful takeovers. Junk bonds are a significant source of funds, but a majority of successful hostile takeovers are financed by other means.

In hostile takeovers, bank loans and junk bonds are very close substitutes as a source of financing. Almost 50 percent of initial issues of junk bonds in table 8 were retired by the following year, in a manner very similar to bridge loans. While many bank loans are converted to junk bonds in the year following the acquisition, investment-grade debt, asset sales, and internal funds are also major ways of retiring bank loans.

Effects of Discouraging Junk Bond Financing

Restrictions on junk bonds will change the composition of debt financing without necessarily reducing acquisitions significantly. Bank loans and investment-grade debt will still be available to finance takeovers, and the incentives for firms to acquire

Table 8
Financing of Nineteen Successful Hostile Takeovers between 1985 and 1987[a]

	At Time of Transaction	One Year After Transaction: Newly Issued	Retired	Net Total	Percent of Total Cost of Transaction[b]
Junk Bonds					
Total Dollars	595.5	1,355	281.8	1,668.7	11.86
Number of Takeovers	3	4	2		
Investment-Grade Bonds					
Total Dollars	1,875	604	1.1	2,477.9	17.19
Number of Takeovers	3	3	1		
Bank Loans					
Total Dollars	7,747.9	160	5,531.5	2,376.4	16.49
Number of Takeovers	13	2	13		
Privately Placed and Nonrated Debt					
Total Dollars	1,252.83	675.5	550.4	1,377.9	9.56
Number of Takeovers	6	2	4		
Commercial Paper					
Total Dollars	500		500		
Number of Takeovers	1	0	1	0	
Stock Sales					
Total Dollars	1,760		200	1,560	10.83
Number of Takeovers	5	0	1		
Internal Funds					
Total Dollars	330	560	60	830	5.76
Number of Takeovers	4	5	1		
Asset Sales					
Total Dollars		3,417		3,417	23.71

[a]Complete information was available for only 19 of the 47 successful hostile takeovers from 1985 to 1987.
[b]Total cost of transactions was $14.4 billion.
Source: IDD Information Services and bond prospectuses.

other firms will remain. Enterprising lawyers, accountants, and investment bankers will find substitutes for junk bond financing.

If the purpose of restricting junk bonds is to reduce corporate leverage, it is unlikely to achieve its goal. From the mid 1970s to the present, corporate leverage rose with banks, commercial paper, and investment-grade bonds providing most of the debt. Leverage today is comparable to that of the late 1960s and early 1970s, a period when all debt consisted of bank loans and investment-grade bonds, and original-issue junk bonds were unknown. The availability of junk bond financing is not a major reason for higher leverage.

If the purpose of restricting financial intermediaries from holding junk bonds is to limit their exposure to risk, it is not likely to be effective. "Safe" assets such as government bonds and real estate loans can cause an intermediary to fail if the institution is not appropriately diversified. First Pennsylvania failed because of capital losses on government securities. Banks in Texas and New England have learned that large losses can occur on real estate loans. Despite these losses, one would not advocate prohibiting banks from holding government bonds and real estate loans. Instead, banks should carefully monitor the risk inherent in their portfolios of assets relative to their capital positions, and if they are overexposed, seek further diversification.

In commercial and industrial lending, banks essentially provide debt financing for businesses lacking investment-grade ratings. Historically, banks have profited from such lending despite the high risk of default, by monitoring their credit risk and diversifying their portfolios. Similarly, junk bonds, if appropriately monitored, can compensate investors for their higher default risk. They provide access to public capital markets for firms that previously relied solely on banks and other financial intermediaries for their external financing. In addition, junk bond financing is longer-term than that commonly available from bank loans.

Junk bonds can improve the diversity of a bank's portfolio. Most bank lending is tied to the region where the bank is located. Diversification outside the region requires setting up expensive loan offices or purchasing loans that other banks do not want to keep in their portfolios. Just as the development of the secondary mortgage market made mortgage loans more liquid, junk bonds make commercial and industrial loans more liquid. The secondary mortgage market was actively promoted by public policy, however, while public policy if anything has deterred the growth of the junk bond market. Regulators frequently restrict the investments of institutions. Not allowing poorly capitalized institutions to purchase junk bonds may be advisable, but not allowing well capitalized institutions to purchase junk bonds may limit their ability to diversify.

IV. Conclusion

Disintermediation, whereby firms obtain funds directly in financial markets rather than from banks, can encourage a more efficient transfer of funds from lenders to borrowers. For example, the secondary market for mortgage loans insulated the housing market from many of the recent problems in the savings and loan industry. The purchasing of liquid mortgage instruments permitted mutual funds, pension funds, and insurance firms to increase their participation in home financing.

Until recently, only firms with investment-grade credit ratings could raise funds directly from credit markets. These firms have such low default risk that they can obtain funds at or below the rates on certificates of deposit. As a result, they rely much more heavily on commercial paper and corporate bonds than on bank loans. Less established companies have not had such access, relying instead on short-term, floating-rate bank loans. The original-issue junk bond market has provided below-investment-grade firms an opportunity to raise long-term funds in national credit markets. By issuing "junk" debt instruments, these firms are able to attract investors who previously had not actively financed commercial activities by relatively small firms.

Despite the advantages to below-investment-grade firms of disintermediating loans, opponents have sought to discourage investors by limiting which intermediaries can hold junk bonds and by eliminating the tax deductions for interest paid on junk bonds. Such asset restrictions do not discourage leverage or takeovers. However, they will encourage firms to substitute bank loans for junk bonds, because bank loans and junk bonds are close substitutes. These restrictions will not alter the motives for holding debt but will limit access by below-investment-grade firms to long-term financing through national credit markets.

[1] These figures are approximations from the U.S. Securities and Exchange Commission, *SEC Monthly Statistical Review*, vol. 48, no. 2, February 1989, as follows:

	Public Non-Convertible Bond Offerings	
	Amount $ billions	Number
Total Business	$ 224.5	3927
Less: Financial and Real Estate	−139.1	−2625
Foreign	−4.5	−36
Junk Bonds	−37.1	−214
Total Nonfinancial Investment-Grade Bonds	$ 43.8	1052

[2] The survey does not include mortgage loans or foreign loans. Construction and land development loans are included in the survey but not reported in the table because they are not available by maturity.

[3] Borrowers can reduce this interest rate risk by hedging with interest rate futures or interest rate swaps (Felgran 1987). If borrowers can get long-term commitments from banks, with the aid of swaps they can create, at some transactions cost, an instrument that mimics long-term bonds. The Federal Reserve lending survey (table 1) shows, however, that long-term fixed or floating-rate agreements by banks are still relatively uncommon.

[4] "Net merger announcements" is calculated as total announcements in the year minus cancelled transactions in the year. As long as cancellations are stable over time, acquisition announcements should be a reasonable approximation for completions. Cancellations as a percent of gross announcements were 7 percent in 1985, 1987 and 1988 and 6 percent in 1986.

[5] The term "successful hostile takeovers" refers to tender offers by acquirers who successfully purchased the firm despite opposition of incumbent management. The list of successful hostile takeovers is taken from *Mergerstat Review*.

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