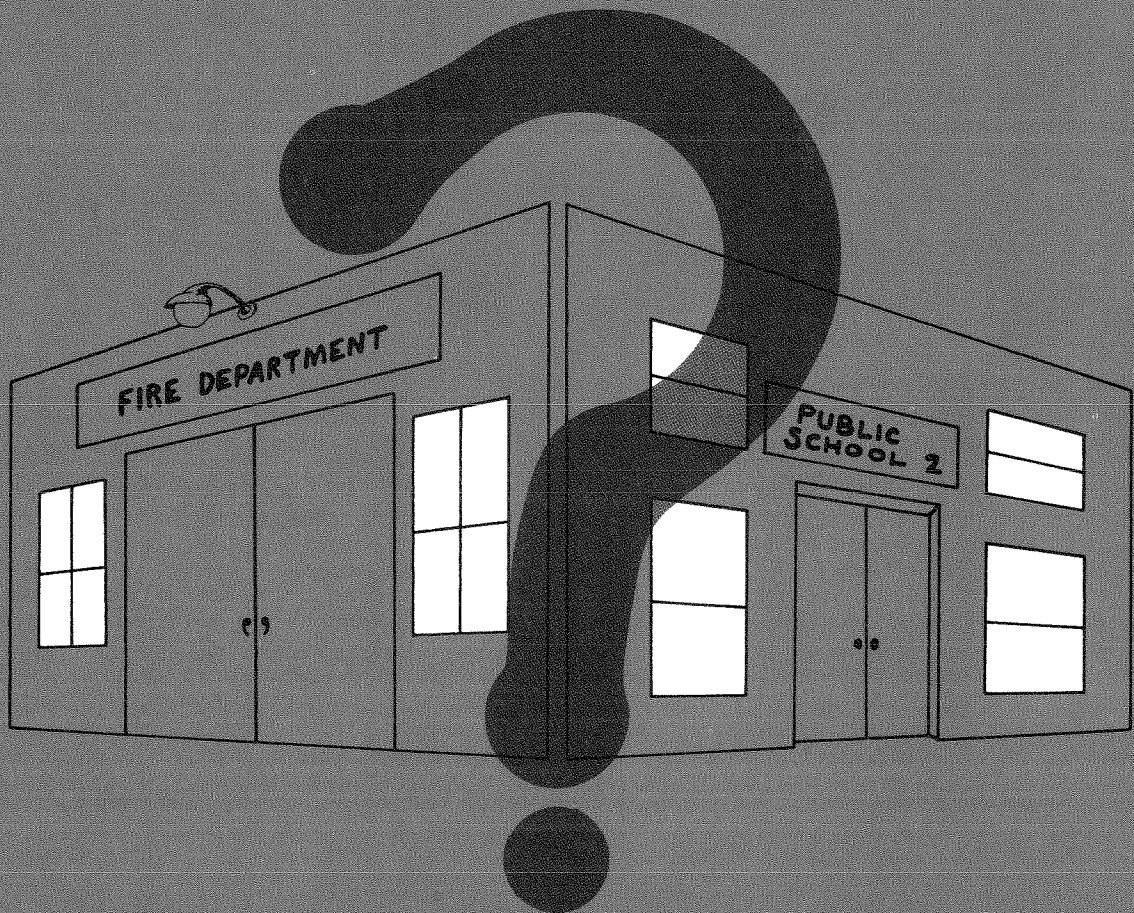


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Competition Between the Commercial Paper Market and Commercial Banks

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Many large, financially sound nonfinancial corporations have relied primarily on the commercial-paper market for short-term funds during the prolonged business expansion of the late 1970's. This important new development in short-term corporate finance has occurred largely at the expense of the money-center banks in New York and other major financial centers. According to our analysis, this development stems from the unavoidably higher costs of bank as compared to paper-market credit, as well as the relatively low value of the intermediation "services" which banks can provide to potential commercial-paper borrowers. Thus the observed trend represents an improvement in the efficiency of the U.S. financial system.

Given these considerations, why did these firms not switch to the commercial-paper market at some earlier date? First, given the consistently low interest rates of the 1950's and early 1960's, they did not feel justified incurring the costs of developing and maintaining the staff expertise to actively manage liquid assets and liabilities. Corporations established a pattern of dealing primarily with banks, even though deposit yields were somewhat lower, and loan rates somewhat higher, than those in the open-market. This restricted commercial-paper growth, from both the supply and demand sides of the market. Second, even after interest rates began their secular rise in the mid-1960's, corporate borrowers remained uncertain about switching to the paper market, because this meant departing from (and possibly damaging) long-standing and difficult-to-replace bank relationships. But the greatly reduced availability of bank credit in the credit "crunches" of 1966 and 1969-70 created a new financial environment. Once having over-

come the obstacles to paper-market entry, eligible firms became very responsive to relative costs in deciding between alternative means of finance. Since bank credit is almost unavoidably more expensive than paper-market credit, the switch to the latter market is not likely to be reversed in the foreseeable future.

This development has several important policy implications. Commercial-paper issuers almost always include the most financially sound firms in the economy, and their reduced use of bank loans thus implies greater riskiness of bank-loan portfolios. The probable permanence of this phenomenon should interest bank regulators in setting capital-adequacy standards. Furthermore, the switch to commercial paper by many prime-rated bank loan customers reinforces the postwar trend toward greater bank exposure to financial-market risk caused by the decline in capital cushions and holdings of low-risk financial investments. It has been pointed out elsewhere that banks now use liability management as their main source of liquidity, so that regulatory actions which limit the flexibility of this tool could contribute to a liquidity squeeze.¹

The impact of these recent developments varies with the region and size of banking institutions, with the strongest effects felt by the large banks in New York City and, to a lesser extent, Chicago and San Francisco. Commercial-paper market growth helps account for the widely discussed weakness in loan demand at money-center banks earlier in the current cyclical expansion. Furthermore, the spurt in loan demand which large banks typically experience near the end of expansions, when their highly liquid customers finally run low on liquidity, may be less pronounced at future cyclical peaks.

Finally, the borrowing cost advantage of paper over loans has risen above the level at which

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many eligible firms have substituted almost entirely into paper. Thus, further moderate changes in relative borrowing costs do not cause substantial substitution between paper and loans. This development may enhance the usefulness of business loans as a business-cycle indicator. Since the prime rate-paper rate spread should be a less-important determinant of business-loan demand than it has been in the past, the correlation between loans and business spending (and thus the business cycle) may be greater. However, attempts to use estimated loan-demand relationships to forecast business-

loan movements could be misleading, at least until enough time has elapsed for new statistical relationships to be estimated.

The first section of this paper discusses certain theoretical considerations relevant to the competitiveness of intermediaries vis-a-vis direct-finance markets. The second section discusses specific institutions and characteristics of the commercial-paper and bank-loan markets. The third section describes and analyzes the postwar changes in the relationship between these two markets, and this is followed by a discussion of policy implications.

I. Direct Finance Versus Intermediation

Financial markets can contribute to economic growth by efficiently allocating the funds of net savers in the economy among economic units engaged in capital formation.² This transfer of funds between units with savings surpluses to those with savings deficits can take two forms: direct finance and intermediation. Direct finance occurs when a deficit unit sells a financial instrument to a surplus unit. Intermediation occurs when a deficit unit borrows from a financial intermediary—such as a bank—which in turn sells a financial instrument to a surplus unit. In order for savings to be optimally allocated among competing real-investment opportunities, the transfer of funds between surplus and deficit units must be accomplished in the least costly way.

Economic functions of banks

Banks and other financial intermediaries exist because of their ability to channel funds between certain types of lenders and borrowers at a smaller cost than is possible through direct finance. If this were not the case, lenders and borrowers would tend to use existing means of direct finance, or would tend to create new financial markets. But how are financial intermediaries able to compete with direct finance markets? Banks, for example, are often large corporations with substantial operating costs—costs which can be avoided when borrowers sell securities directly to lenders.

Financial intermediaries are able to compete because they provide a number of services which are attractive both to lenders and borrowers.

Intermediaries transform the direct debt of ultimate borrowers (e.g., bank loans) into indirect debt (e.g., bank deposits) for sale to ultimate lenders. In doing so, banks are able to pool the funds of a large number of small savers to make loans of varying sizes to borrowers. This helps borrowers avoid the cost and inflexibility of dealing with a number of small lenders, and provides attractively denominated investments for savers. Banks are also able to loan funds at different maturities than those at which they borrow. Thus, ultimate lenders and borrowers can gain greater flexibility in choosing maturities than they could do with direct finance.

Lenders and borrowers also may be able to obtain reductions in risk by using intermediation rather than direct finance. Because banks have large portfolios, they can profitably make loans and purchase securities across a broad spectrum of types and maturities. At any point in time, this diversification reduces the risk of the entire portfolio compared to that of the individual financial assets. Thus banks can offer savers indirect debt which generally has greater liquidity than the direct debt of ultimate borrowers. Because of their portfolio diversification as well as their capital cushion, banks can also reduce risks experienced by firms over periods of time such as business cycles. In addition, banks can allocate funds less expensively than certain borrowers and lenders, through exploiting economies of scale and specialization. Banks can incur economies of scale because of the large number and volume of their loans and investments. Also, they can reduce costs because of their expert

knowledge, gained through specialized investing and dealing with ultimate borrowers and savers.

Finally, the personal contact between bankers and their customers allows transactions and pricing mechanisms to be finely tuned to customers' needs, and allows banks to acquire very specific financial and other information. These advantages can grow with the length of the bank/customer relationship, because information on both sides becomes more precise over time. Many firms consider a solid banking relationship to be an essential part of doing business. Long-standing customers benefit because banks will often make loans to them when they experience temporary financial difficulties or when credit availability is limited overall. Since the open market is generally less dependable in these situations, firms can eliminate a great deal of cyclical uncertainty by staying on good terms with their bankers. In addition, banks can develop very accurate credit profiles on long-standing loan customers. Except where they are large enough for national recognition, firms may be able to obtain loans at lower rates from banks than from the open market.

Clearly, the value of bank services is difficult to measure, and varies between different ultimate borrowers and lenders. For example, smaller lenders especially may find certain bank services valuable, such as investment expertise, economies of scale, risk reduction, divisibility and flexibility. Smaller, weaker borrowers may find the personal bank relationship valuable—certainly more so than large nationally-recognized firms—because with that relationship, cyclical risks can be reduced and credit profiles can be based primarily on personal evaluations.

Banks and direct markets

Banks provide such services in order to earn a profit; specifically, by charging a large enough spread between their lending rates (Rl) and their depositor borrowing (or deposit) rates (Rb) to cover the costs of doing business, including a premium for risk-taking. But the size of the spread they can charge is limited by competition with other intermediaries and other financial markets. In choosing between a bank and a direct finance market, ultimate lenders compare

the rate they can earn on bank deposits (and other liabilities), Rb, plus the yield equivalent of the value of bank services (γ) to the rate they can earn on open-market securities (Rs). As $Rs - Rb - \gamma$ rises, lenders will supply a larger quantity of credit to the open market compared to banks.

$$\frac{OM^s}{(OM^s + B^s)} = \alpha + \beta (Rs - Rb - \gamma) + \lambda Y, ; \beta > 0 \quad (1)$$

Where, OM^s = supply of credit to direct finance or open markets

B^s = supply of funds to banks

Y = unspecified exogenous variables

Rs, Rb, γ = defined in text.

Ultimate borrowers compare the bank loan rate (Rl) less the yield equivalent of the value of the bank services (γ') to the rate they must pay on open-market securities. As $Rl - Rs - \gamma'$ rises, borrowers will obtain a larger proportion of their external funds through the open market compared to banks.

$$\frac{OM^d}{OM^d + B^d} = \alpha' + \beta' (Rl - Rs - \gamma') + \lambda' Y' ; \beta' > 0 \quad (2)$$

Where, OM^d = demand for direct finance, or open-market credit

B^d = demand for bank credit

Y' = unspecified exogenous variables

Rl, Rs, γ' = defined in text

Consequently, the net effect of these two choices is that lenders and borrowers will channel a smaller proportion of funds through banks if the bank spread, $Rl - Rb$, rises relative to the cost of channeling funds through the open market. These open-market costs are the value of bank services foregone by lenders and borrowers, plus any explicit costs associated with the direct transfer, such as brokerage fees. Since these costs are likely to be relatively stable in the short run, the volume of direct finance compared to bank intermediation should vary positively with changes in the bank spread. This relationship can be derived by solving equations (1) and (2) for market equilibrium (reduced-form) values of

$\frac{OM}{OM + B}$ and assuming that γ and γ' are constants.

$$\frac{OM}{OM + B} = \text{constant} + \frac{\beta\beta'}{\beta + \beta'} (R1 - Rb) + \frac{\beta\lambda'}{\beta + \beta'} Y' + \frac{\beta'\lambda}{\beta + \beta'} Y$$

where constant = $\frac{\alpha\beta' + \beta\alpha' - \beta\beta'(\gamma + \gamma')}{\beta + \beta'}$ (3)

Thus banks can alter their relative attractiveness vis-a-vis direct finance markets either by changing $R1$ or Rb . For example, if $R1$ rises, the *demand* for bank as compared to open-market credit falls. This requires an increase in R_s to equate supply with demand. The same reduction of the credit flow can be accomplished by decreasing Rb . This will reduce the *supply* of credit to banks relative to open-market credit, and will require a decrease in R_s to equate demand with supply.

II. Commercial Paper Market Versus Commercial Banks

The abstract principles and choices discussed in the previous section are carried out in the economy through a complex system of different intermediaries and financial markets. This article is concerned with the relationships between *intermediation* through large money-center banks (such as those in New York), and *direct finance* through the nonfinancial commercial-paper market. These two types of institutions can be characterized as competing for the flow of short-term credit from large financial and nonfinancial corporations to other large, highly-rated nonfinancial corporations. In order to analyze recent developments in their ongoing relationships, we must consider the institutional framework in which they operate.

Borrowers

Commercial paper consists of short-term promissory notes issued by both nonfinancial and financial corporations.³ In the third quarter of 1978, total commercial paper outstanding reached \$75.3 billion—of which \$44.9 billion was issued by nonbank financial companies (almost entirely sales- and personal-finance companies), \$17.7 billion by nonfinancial corporations, and \$12.7 billion by commercial-bank holding companies (Chart 1). Original maturities of commercial paper range from one to 270 days, but average less than 60 days. This method of finance is limited primarily to large, highly-rated, and often nationally known firms, because commercial paper is usually not secured by any specifically designated collateral—although it does of course have debt's prior claim over equity. To

gain access to the market, however, issuers generally must maintain bank lines-of-credit, often in amounts equal to their paper outstanding. Well over 700 firms hold commercial paper ratings.⁴ Of the three ratings available (Prime-1, Prime-2, and Prime-3), only the highest two provide ready access to the market. Furthermore, interest rates on the paper of P-2 rated firms run about 25 basis points higher than the rates on P-1 rated paper at present.

Finance companies are the largest single group of commercial-paper issuers. Because of their large and steady needs for financing their relatively short-term assets, they place most of their debt directly in the commercial-paper market with the help of permanent sales staffs.⁵ Once firms make the fixed investment in sales facilities, acquire the necessary investor contacts, and commit themselves to "making" a market in their paper, they tend to rely primarily on commercial paper and only secondarily on bank loans. Thus, since we are concerned with the competition between banks and the paper market, we do not discuss finance-company paper further.

Nonfinancial corporations are the second largest group of paper issuers. These firms use the paper market primarily to finance short-term or seasonal expenditures on such items as inventories, payrolls and tax liabilities. They issue this paper through dealers, since the size and/or consistency of their borrowing needs do not justify placement through their own staffs.⁶ In addition, nonfinancial companies sometimes use the paper market to obtain temporary funds,

when they wish to delay bond sales in anticipation of more favorable market conditions. Short-term bank loans provide their major alternative source of funds to paper-market sales. Since these firms generally represent potential customers of the large money-center banks, the best available measure of the paper market's competition is provided by the short-term commercial and industrial loans (excluding bankers' acceptances) of selected large weekly reporting banks.⁷ In 1978:3, these bank loans outstanding totaled \$55.0 billion (Chart 1).

Not all nonfinancial paper is issued by domestic firms. Foreign corporations, especially French utilities, have issued increased amounts of paper since shortly after the removal in 1974 of U.S. controls on capital outflows and foreign controls on capital inflows. These borrowers, who apparently do not usually use U.S. bank loans, have entered the U.S. paper market because of the sizeable spread between European bank-loan rates and U.S. commercial-paper

rates. Starting from a base of almost zero in 1974, their outstandings represented roughly 10 percent of nonfinancial paper at the end of 1977.⁸

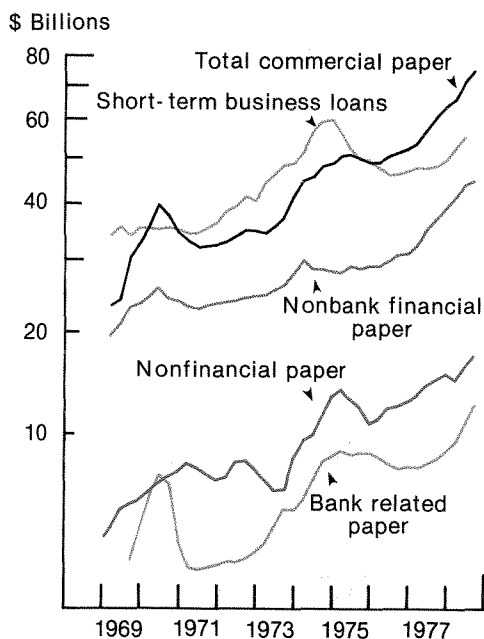
In making short-term financing decisions, prime-rated domestic nonfinancial corporations weigh the relatively high cost of borrowing from banks versus issuing paper against the unique services offered by banks. The spread between the bank prime-lending rate and commercial-paper yields is the major element in the borrowing-cost differential.⁹ In the current economic expansion (1975:2-1978:3), the prime-rate spread has varied from 90 to 156 basis points, and has averaged over 125 basis points (Chart 2). Despite the large spread, banks have been able to attract some prime-rated loan customers during this period because of the risk protection and other services they offer.

Lenders

Relatively little quantitative information is available on the amounts of commercial paper held by various types of investors. However, survey information indicates that the major holders are nonfinancial corporations, and that less significant quantities are held by bank trust departments, small country banks, insurance companies, private pension funds, state and local governments, investment companies and foundations. Many of these firms buy commercial paper with funds temporarily available for a predictable period of time. For example, a nonfinancial corporation might buy paper with cash needed to meet a payroll in a certain known number of days. Alternatively, the firm might purchase some other money-market instrument, such as large negotiable certificates of deposit (CD's) or Treasury bills.

Unlike most other money-market instruments, commercial paper has no established secondary market. This problem is largely overcome, however, by the tailoring of maturities to fit investors' needs. Thus in the example above, the corporation could buy paper which matures on the day the payroll is due, instead of buying a longer-term CD and selling it in the secondary market when cash is needed. Furthermore, if a commercial-paper holder experiences unforeseen cash needs, many direct-placers and dealers will buy paper back prior to maturity, especially

Chart 1
Commercial Paper and
Short-Term Business Loans
Outstanding



Source: Federal Reserve Bank of New York and Board of Governors of the Federal Reserve System.

if the holder is a regular customer. The spread between the commercial paper rate (RCP) and the CD rate (RCD) has averaged only one basis point, and has varied between -16 and 12 basis points, over the 1975:2-1978:3 period (Chart 2).¹⁰ The small spread reflects the fact that holders of CD's do not receive the substantial bank services obtained by holders of small-denomination deposits. In buying a large CD, the investor is simply purchasing a money-market security which happens to be issued by a bank.

Interaction between borrowers and lenders

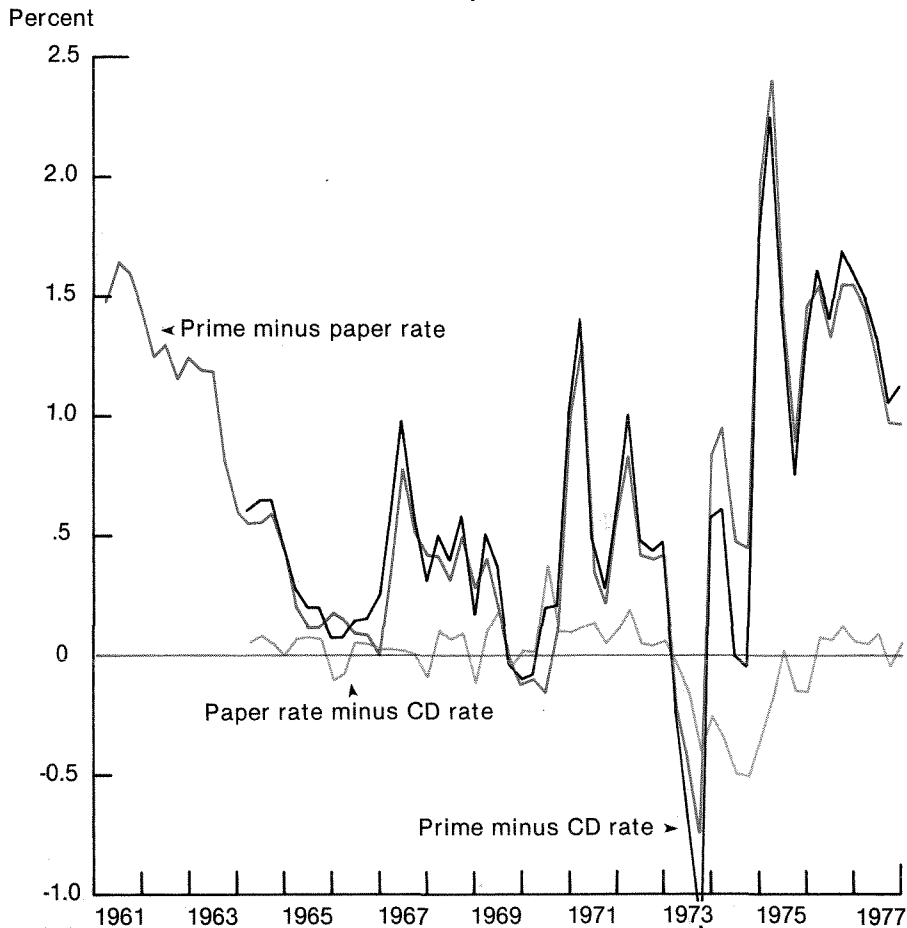
The commercial-paper market is competitive

with both the assets and liabilities of commercial banks. On the bank asset side, commercial-paper sales are the major alternative to bank loans to prime-rated nonfinancial corporations. On the bank liability side, commercial-paper purchases are a major alternative to bank CD's for corporate investors of temporarily idle cash. Thus, the commercial-paper market offers eligible corporations the opportunity to borrow from and lend to each other without the intermediary services of commercial banks.

The spread between the prime bank-lending rate (RP) and interest rates paid in the dealer-placed commercial-paper market (RCP) should be an important determinant of the supply of

Chart 2

Yield Spreads



Note: Paper rate equals yield on a 4-6 month prime commercial paper. CD rate equals yield on 90-day large negotiable CD's. Prime rate equals prevailing rate on prime business loans at large banks.

nonfinancial paper. The spread between yields obtainable in the dealer-placed commercial-paper market (RCP) and yields on alternative assets such as CD's (RCD) should importantly influence the demand for nonfinancial paper. By subtracting the demand-side yield spread (RCD-RCP) from the supply-side yield spread (RP-RCP), we obtain what we will call the bank spread ($S=RP-RCD$), which summarizes the incentives of both demanders and suppliers when deciding whether to channel short-term corporate credit through banks or through the paper market. (The bank spread is the rate spread which would appear in a reduced-form equation for the stock of commercial paper.)¹¹ When the bank spread rises, for example, a greater proportion of this credit flow can be expected to go through the commercial-paper market. This involves some loss of risk protection and other bank services, but is presumably offset by the lower cost of channeling the funds.

As an empirical matter, this approach involves choosing a measure of the total flow of

credit to be divided between the bank and paper-market channels. In theory, this measure could be obtained equally well from the liabilities of the borrowers involved, or from the assets of the lenders; in practice, available data suggest the use of the liability measure. Furthermore, as noted earlier, both the level and the changes in the bank spread have been explained primarily by the prime rate-paper rate spread faced by borrowers, rather than by the paper rate-CD rate spread faced by lenders (Chart 2). Thus most (but certainly not all) of the "action" in the bank/paper relationship has been related to changes in the financial incentives of borrowers. For these two reasons, we will focus henceforth on movements in one particular ratio, with the numerator representing total nonfinancial paper outstanding, and the denominator representing that same paper outstanding plus an estimate of total short-term bank loans to those nonfinancial corporations who are potential issuers of paper.¹²

III. Changes in the Paper Market-Commercial Bank Relationship

Prior to the "credit crunches" of the mid-to-late 1960's, large commercial banks played the dominant role in the short-term financing of prime-rated corporations, despite significantly lower borrowing costs in the commercial-paper market. During the "crunches," many of these borrowers were introduced to the paper market, and in the first half of the 1970's became highly sensitive to the relative borrowing costs of loans versus paper. Since 1975, however, this degree of substitution has fallen dramatically: many eligible firms now meet their short-term credit needs primarily in the paper market, and obtain loans only as a supplementary source of funds. Why have they switched from intermediation to direct finance? Is this a permanent switch, or is it soon likely to be reversed?

Pre-"credit crunch" era

Prior to the late 1960's, the prime rate-paper rate spread consistently favored the paper market. During the 1961-65 period, for example, the spread (calculated with the 4-6 month paper rate) averaged 88 basis points. Despite this spread,

eligible corporations relied primarily on loans, using paper only as a supplementary source of funds.¹³ Perhaps corporate bank customers did not shift into the paper market at that time because they placed a high value on the services which banks offered to their regular customers. But this can be only a partial explanation, because these services—such as cyclical risk reduction and credit ratings based on personal experience—probably are not valued highly by many of the large well-known firms eligible to issue commercial paper.

Throughout the lengthy period of low nominal interest rates prior to the mid-1960's, large corporations maintained a strong tradition of primary reliance on banks for short-term credit. They recognized the potential gains obtainable from managing assets and liabilities with sophisticated techniques, but did not believe the gains were large enough to justify the costs. This situation inhibited the growth of the commercial-paper market from both the demand and supply sides. Corporate treasurers were content to leave large sums of liquid assets

in low-interest or noninterest-bearing bank deposits, and thus reduced the supply of funds to the money markets. In addition, they were often content to ignore interest-cost minimization when managing their liabilities, and thus limited the demand for money-market funds.¹⁴

The situation did not change significantly even when short-term interest rates began their secular rise in the early 1960's. After years of experience in dealing with each other, banks and their customers had typically worked out a subtle set of individually designed services and associated (explicit and implicit) prices. Since these arrangements were based on personal contacts—on personal “loyalty,” even—they could not easily or quickly be established elsewhere. Thus, a customer who obtained more than a token amount of credit from the paper market (the bank's competitor) could seriously disrupt a smoothly-functioning bank relationship. Indeed, a 1964 survey of large corporations found that 60 percent did not increase their commercial paper outstanding for fear of straining bank relationships.¹⁵ A potential borrower in the paper market might be wary of entering a relatively long-run commitment to an untested source of funds. The expected profits might be attractive, but the risk associated with these profits might also be large. Also, such an action might involve certain fixed start-up costs, such as actually developing the necessary expertise in using the market. For firms with professional personnel trained in the tradition of bank financing, these costs could be substantial. Thus, strong financial incentives were necessary to push eligible firms over the threshold into primary or even significant reliance on commercial paper.

“Credit crunches”

In the latter half of the 1960's, the commercial-paper market underwent dramatic growth. During 1965-70, total commercial paper outstanding increased from \$9.8 billion to \$37.1 billion—an annual growth rate of 26.6 percent, compared with the 14.7-percent average growth of the preceding five-year period. Nonfinancial paper accelerated even more sharply than the market as a whole, growing at a 34.4-percent annual rate during 1965-70, as against the 11.2-percent average growth of the 1960-65 period.

Two basic factors converged in this period to push many eligible nonfinancial corporations over the threshold into the commercial-paper market. The first was the upward trend in short-term interest rates. As explained above, this motivated corporations to manage their liquid assets and liabilities actively, and thus set the stage for growth from both the demand and supply sides of the paper market.

The second factor, which determined the timing of the rapid paper-market growth, was the “credit crunches” of 1966 and 1969-70. Banks had difficulty meeting strong loan demand during these periods of disintermediation, when open-market interest rates rose above the Regulation Q ceilings on CD rates. During these periods, banks actually encouraged their financially strongest customers to issue commercial paper, and offered them lines of credit to back their outstanding paper. Borrowers entered the paper market who had previously hesitated to do so, despite lower borrowing costs, for fear of straining bank relationships. In addition, for many firms, reduced credit availability for the first time gave them a reason to incur the “start-up” costs associated with greatly increased reliance on the paper market.

Disintermediation in the late 1960's thus caused a sharp upward—and irreversible—shift in nonfinancial corporate use of the commercial-paper market.¹⁶ Commercial banks essentially have conceded that their prime-rated customers can substitute between paper and loans without a substantial loss of other bank services. Indeed, banks have greatly assisted the subsequent growth of the commercial-paper market by granting lines-of-credit, with standard compensating balance requirements, to support outstanding commercial paper. Not being able to obstruct the market's development, the banks have apparently decided to profit as much as possible from its growth.

Post-“credit crunch” era

In the first half of the 1970's, prime-rated nonfinancial corporations allocated their short-term credit flows, through either the banks or the paper market, on the basis primarily of the relative costs involved (Chart 3). Indeed, a strong positive relationship existed between the proportion of nonfinancial paper and short-term bank

borrowing accomplished through the paper market (P), and the bank spread ($S=RP-RCD$). As the cost of channeling funds through the intermediary (commercial banks) rose, nonfinancial corporations channeled a greater proportion of short-term credit through the open-market alternative (the paper market). But the relationship between P and S has clearly broken down since 1975, as will be seen below.

In view of the increased responsiveness of paper-market growth to relative-cost considerations, the typical pre-crunch bank spreads of 50 basis points or more should have stimulated much greater paper utilization. This, in fact, happened in 1970-71.¹⁷ But in 1972-73, interest-rate controls artificially depressed the bank spread, and this temporarily postponed the expected growth in the paper market. As part of the general program of wage and price controls initiated in 1971, the Committee on Interest and Dividends developed voluntary controls on certain "administered" interest rates, including the bank prime-lending rate.¹⁸ Because of these restraints, the bank spread actually became negative in the first three quarters of 1973. Thus, not surprisingly, the commercial paper share of the market declined, with P falling from almost 17 percent to just over 11 percent between 1972:2 and 1973:3.

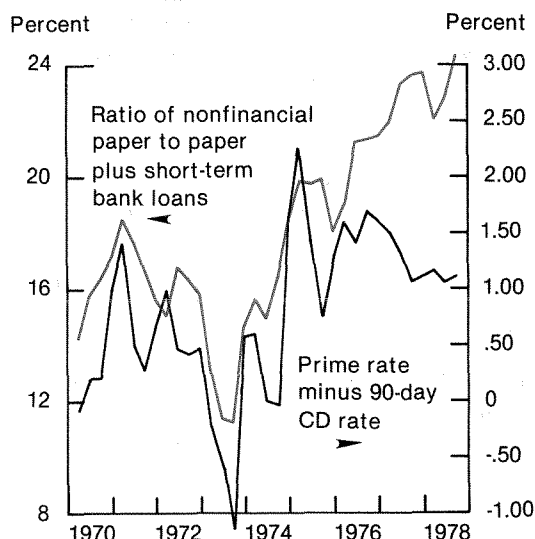
With the removal of controls, large banks were able to re-establish conformity between desired and actual prime rates, and the spread jumped from -74 to 96 basis points between 1973:3 and 1974:1. This stimulated an almost immediate increase in the commercial paper market share, with P rising from 11.2 percent to 15.6 percent. Then, in 1974-75, the prime rate increased even more sharply. Large banks established a roughly 150-basis point spread between their prime-loan rate and the commercial paper (and CD) rate, a new high for the post-1966 period. As a result, they lost a significant portion of the short-term credit market to commercial paper.

Why, in the face of such stiff competition, did banks increase their rates so sharply?¹⁹ First, large loan losses suffered during the 1974-76 period probably contributed to the high spread. Net loan losses for U.S. insured commercial banks rose from an average of about \$1.0 billion (0.25 percent of total loans) in the 1971-73 period

to a high of \$3.5 billion (0.65 percent of total loans) in 1976.²⁰ This experience increased the perceived riskiness of loan portfolios, causing banks to seek compensation by increasing the risk premium included in loan rates. Another contributing factor was the growing concern by banks and their regulatory agencies about the adequacy of capital relative to bank assets. For U.S. insured commercial banks, the ratio of equity to total bank assets (less cash and U.S. Government securities) declined fairly steadily from 14.1 percent in 1963 to 8.0 percent in 1974.²¹ This decline represented an erosion in the cushion provided by bank capital to depositors against loan losses, and may have led to regulatory pressure restricting further growth in loan portfolios.

Banks also tended to maintain a high spread because of two increasingly common features of their prime-rate setting behavior. First, banks often tie rates on existing loans to those on new loans, as a means of protecting themselves against the risk of rapidly rising interest rates. Profits can be squeezed when rates rise, because bank liabilities generally have shorter maturities than bank assets—but this problem can be allevi-

Chart 3
Substitution Between Commercial Paper
and Short-Term Bank Loans



Note: Data are seasonally adjusted. Bank loans are business loans, excluding bankers acceptances, from selected large banks (see footnote 7).
Sources: Board of Governors of the Federal Reserve System; Federal Reserve Bank of New York.

ated if rates charged on existing assets increase along with market rates. In early February 1977, about two-thirds of short-term loans and three-fourths of long-term loans extended by large banks carried these floating rates.²² Second, many banks set interest rates on new nonprime loans to established loan customers at a predetermined mark-up over the prime rate. This practice simplifies the process of setting loan rates once a particular mark-up has been established for a regular loan customer. Both of these practices have become increasingly popular in the recent environment of high and variable inflation and interest rates. This rate-setting approach lowers the marginal revenue gained by reducing the prime to compete for new loan customers, and thus tends to raise the spread over the paper rate.

Finally, sharp increases in the rate spread may themselves cause a reduction in the elasticity of overall loan demand. A high prime rate induces some commercial-paper issuers to accomplish most, if not all, of their short-term financing through the paper market. This means that a larger proportion of remaining bank loan customers are those who cannot shift to commercial-paper financing when bank-loan rates rise. With rates on nonprime loans often tied to the prime, prime-rate changes serve the dual role of competing for two sets of loan customers: those with elastic and those with inelastic demand curves. As the prime rate rises and prime-rated firms switch to the paper market, the elastic demand for loans has less effect on bank revenues. Thus further increases in the prime rate are induced by the decreased elasticity of overall loan demand. In addition, the riskiness of bank-loan portfolios rises when prime-rated firms reduce their reliance on bank loans. This causes further prime-rate increases as banks tie existing and new non-prime loan rates to the prime rate.²³

Commercial-paper era

Since about early 1976, the relationship between the bank spread and commercial-paper usage has broken down (Chart 3). Commercial paper as a proportion of short-term debt rose from 19.0 percent in 1976:1 to 24.3 percent in 1978:3, despite a decline in the rate spread, from 162 to 110 basis points, over the same period.²⁴ Two factors help explain these apparently diver-

gent movements. First, a number of firms have entered the paper market for reasons unaffected by changes in the rate spread. But most importantly, many firms already in the paper market have reduced their short-term bank-loan balances to very low levels, and have thus stopped actively substituting between paper and loans.

As noted earlier, several large foreign utilities have entered the paper market since 1974, apparently to take advantage of the large spread between European bank-loan rates and U.S. commercial-paper rates. For example, in 1977:4, the French prime bank-loan rate was 11.35 percent, compared to a 90-119 day U.S. prime commercial paper rate of 6.55 percent. Foreign issuers have reportedly accounted for about one third of nonfinancial-paper growth since mid-1974. When this foreign paper is deducted from total nonfinancial paper, the paper market share (P) is reduced from 23.7 to 21.7 percent in 1977:4.

The same type of development has been evident on the domestic side, as more and more eligible firms have become convinced that high bank spreads are here to stay. In 1976, the number of firms rated by Moody's Investors' Service grew at a 17.2 percent pace, compared to very small or negative growth rates in 1972-75. But entry as a source of further paper-market growth is limited by the number of companies who qualify as potential issuers of paper. This source of growth may already have been largely used up. In 1977, the number of firms rated by Moody's grew only 4.3 percent, despite the continued large cost incentives to enter the market.

Perhaps the most important reason for the apparent paradox of a declining spread and rising paper-market share is the maintenance of the spread well above the threshold which had already attracted heavy paper-market usage by most eligible firms already in the commercial-paper market. A 1977 survey of Fortune 1000 companies suggests that many eligible firms are now relying primarily on the commercial-paper market for their short- and intermediate-term funds.²⁵ About 35 percent of the surveyed first 500 and 19 percent of the second 500 do not borrow at all from commercial banks. Of the remainder of these two groups, 53 and 9 percent,

respectively, have issued paper in the past. Reasons cited for using loans in addition to paper include: primarily as a back-up credit line to paper outstandings (48 percent); as a more flexible source of funds (44 percent); and as a significant source of funds whenever a "reasonable" cost difference exists between bank credit and commercial paper (40 percent).

Once the spread rises significantly above levels sufficient to reduce firms' bank-loan balances to very low levels, further moderate changes in the spread will have only a small impact on short-term financing decisions. Thus, a movement from say, 150 to 125 basis points will have much less impact on market shares than a change from, say, 50 to 25 basis points. A mid-1977 survey of corporate treasurers indicated that many firms would not consider increasing their short-term bank borrowing until the spread fell to the 25-50 basis point range, while others would not do so until the spread actually favored loans.²⁶ The actual spread for P-2 rated paper issuers (i.e., marginal issuers) jumped from an average of 57 basis points in 1974:4-1975:3, to an average of 123 basis points in 1974:4-1978:2, and never fell below 97 basis points in the latter period. The sharp increase in the spread for these firms coincided with the breakdown in the spread-market share relationship.

These considerations, together with the high present level of the spread, seem to imply that banks would have to reduce the spread substantially to restrict the growth of the commercial-paper share of the market. In addition, if most potential paper issuers have already entered the market, further increases in the spread might not lead to any further increase in commercial paper's market share.

Secular shift?

The remaining question concerns whether banks will reduce their prime-rate spread enough in the foreseeable future to regain their former position as the major source of short-term funds for prime-rated nonfinancial corporations. Fortunately, an answer to this question does not require a prediction of future changes in the spread, which depend on such difficult-to-forecast factors as bank-loan portfolio risk, growth in bank capital, and bank willingness to make fixed-rate loans. Even if such influences

were completely eliminated, the prime rate would still probably be too high for banks to regain many loan customers from the commercial-paper market.

For a loan to be profitable, a bank must set the loan rate at a mark-up over its current cost of loanable funds by enough *at least* to recover the reserve-requirement costs and variable operating costs associated with making and servicing the loan. Banks face a current cost of funds roughly equal to the interest rates on money-market instruments, such as prime commercial paper and large negotiable CD's. Thus any mark-up in the prime rate over the bank cost of funds makes it more expensive for top-rated corporations to borrow at banks than in the paper market. Reserve requirement costs alone represent a mark-up of over 55 basis points at mid-1978 yields on CD's of 8.67 percent.²⁷ Even at the 1977:1 interest rate trough of 4.63 percent, reserve-requirement costs translated into almost 30 basis points. Less complete data are available on bank operating costs, but a recent Federal Reserve study of a group of medium-sized banks suggests that their variable noninterest costs for business loans average just over 100 basis points.²⁸ Given the economies of scale in banking, this estimate probably overstates the costs at money-center banks, but suggests at least that they are most likely substantial.

These cost factors tend to set a floor below the rate spread, which gives most eligible corporations a substantial cost advantage in issuing commercial paper. For reasons already discussed, nonfinancial corporations increasingly have focused their attention on relative costs, not bank relationships, in deciding between alternative sources of finance. Most prime-rated firms are not willing to pay a large prime rate-paper rate spread because they receive relatively little value from the intangible intermediary services offered by banks. Furthermore, many such firms can enjoy the benefits of a sound bank relationship *and* take advantage of lower borrowing costs in the paper market at the same time. For the foreseeable future, therefore, banks probably will not be able to lower their spreads enough to attract substantial loan business from the commercial-paper market.²⁹

However, the rate spread for corporations

with less than the top commercial-paper rating may well favor the use of bank credit during periods of stress in the financial markets, such as happened in 1974. During this period, several corporations (including paper-issuing utilities and REIT's) experienced difficulties, and some giant firms (e.g., W.T. Grant) actually failed. In response to a perceived increase in lending risks, the spread between Prime-2 and Prime-1 (30-59

day) dealer-placed paper rates averaged about 145 basis points in the 1974:3-1975:1 period, and reached a peak of 153 basis points in 1974:4. Thus, future periods of financial stress might lead some firms to shift from paper-market financing to bank financing. Still, this would most likely be a temporary phenomenon, lasting only until prime rate-paper rate spreads returned to more normal levels for Prime-2 firms.

IV. Conclusions and Policy Implications

In this paper, we have argued that the commercial-paper market has replaced the banking sector as the primary source of short-term funds for large, financially sound nonfinancial corporations. Banks can compete effectively with the open-market only if the value of their intermediary services to ultimate lenders and borrowers is greater than the spread between the lending and borrowing rates that they must charge to cover the costs of doing business and absorbing risk. We concluded that the value of these services is relatively small for those large corporations who are eligible to participate in the commercial-paper market. Thus, the recent switch from an intermediary to a direct-finance market as a means of channeling short-term funds between large corporations has probably improved the efficiency of the U.S. financial system.

What are the public-policy implications? With prime-rated firms now a smaller factor in the market for short-term bank loans, the riskiness of bank-loan portfolios tends to increase, thus exposing the banking system to greater market risk. The probable permanence of this development should be of interest to bank regulators when determining capital-adequacy standards for the banks they supervise. Furthermore, this greater risk exposure reinforces the effects of other major postwar trends in bank balance sheets, such as the reduction in capital cushions and the declining ratio of low-risk security holdings to loans. At the same time, banks have come to rely on liability management as their main source of liquidity. Because of that factor, a liquidity squeeze could result from policy attempts to restrict the flexibility of liability management, such as through a greater restrictiveness of Regulation Q interest-rate ceilings.³⁰

Competition from the commercial-paper market affects large money-center banks more than other banks, since their typical customers are the firms most likely to be active in the paper market. These giant corporations, typically highly liquid, generally have modest external financing needs until late in cyclical expansions. Thus, business loan activity at money-center banks is usually sluggish until near business-cycle peaks, but then grows rapidly. Increased corporate use of the paper market contributed to greater-than-usual weakness in large bank loan activity in the earlier stages of the present recovery, and may also mean that the spurt in loan demand may not be as strong at the next cyclical peak as at earlier peaks. But money-center banks still may be able to capture some loan business from less-highly rated paper issuers, because risk premiums in the paper market tend to rise as financial strains develop near the end of expansion periods. At that point, however, reserve-requirement costs (which are significantly higher for large than for small banks) will widen their competitive disadvantage vis-a-vis the paper market. These costs vary positively with market interest rates, and will thus be at their highest point in the stage of the cycle when large banks might otherwise be able to capture some short-term loan business from the paper market.

The low sensitivity of paper-market borrowing to the prime rate-paper rate spread implies a similar low sensitivity of business-loan demand. The use of past statistical relationships (which include the rate spread as an explanatory variable) to forecast business-loan movements might well produce misleading results, at least until enough time has elapsed to estimate new demand relationships. However, business loans may be a

more useful business-cycle indicator than in the past, since loan movements over the cycle will probably not be significantly affected by changes in the prime rate-paper rate spread. Thus, the correlation between loans and business spending (and thus the business cycle) may be stronger than in the past.

Innovations in institutional arrangements are not uncommon events in financial markets.

Indeed, according to a large body of economic literature, the scope of financial intermediaries has expanded relative to direct finance markets as the economy has become more complex and specialized. In this paper, however, we have pointed out one case in which the process has been reversed, with the scope of the commercial-paper market increasing relative to that of large commercial banks.

FOOTNOTES

1. See Jack Beebe, "A Perspective on Liability Management and Bank Risk", **Economic Review**, Federal Reserve Bank of San Francisco, Winter 1977, pp. 12-25.

2. This section draws heavily on John G. Gurley and Edward S. Shaw, "Financial Intermediaries and the Savings-Investment Process," **Journal of Finance** (May 1956), pp. 257-66, and James C. VanHorne, "The Functions of Financial Markets," **Functions and Analysis of Capital Market Rates** (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1970), pp. 1-14.

3. See Evelyn M. Hurley, "The Commercial Paper Market", **Federal Reserve Bulletin**, (June 1977), pp. 525-536 for information on current commercial paper market institutions. For a discussion of earlier institutions and behavior see Nevins D. Baxter, **The Commercial Paper Market** (The Bankers' Publishing Company, Boston, 1966), and Frederick C. Shadrack, Jr., "Demand and Supply in the Commercial Paper Market", **Journal of Finance** (September 1970), pp. 837-857.

4. Three rating services actively rate commercial paper at present. Moody's Investors Service rated over 80 percent of the 714 commercial-paper issuers at the end of 1976. Standard & Poor's Corporation also rated a large number of commercial-paper issuers, while Fitch Investors' Service rated less than 60 issuers in late 1976. Most dealer-placed commercial paper now has ratings from at least two of these services because of a Securities and Exchange Commission ruling, effective July, 1977, which requires that dealers who take commercial paper with less than two ratings into inventory must "write-down" the value of that paper by from 15 to 30 percent.

5. Bank holding companies are the other significant issuers of directly-placed commercial paper, and they also issue a small amount of dealer-placed paper.

6. Other issuers in the dealer-placed market include smaller finance companies, bank holding companies, mortgage companies, real-estate investment trusts, and firms engaged in transportation, insurance and leasing.

7. These 160 banks, which are part of the Federal Reserve Board's large weekly reporting bank sample, have a larger average size than the other banks in the full sample. The business loans of the selected banks represented over 82 percent of all such loans of the full sample in December 1977. See Board of Governors of the Federal Reserve System, Statistical Releases H.12 and H.12(B). These data were seasonally adjusted by an X-11 procedure for use in this article.

8. See Moody's Investors' Service, **Moody's Bank Survey** (March 6, 1978), pp. 1539-1542.

9. Several other somewhat less important cost considerations also affect the choice between commercial-paper market and commercial-bank financing. Additional costs associated with issuing paper are the 1/8 of a percentage point dealer fee, fees to money-market-bank agents for handling the collection and payment of commercial-paper transactions, and fees to commercial-paper rating agencies. On the other hand, banks generally require higher compensating balances for loans than for lines-of-credit necessary to back-up commercial paper outstanding. Moreover, expected prime-rate changes can influence the effective cost of bank borrowing, since rates charged on existing loans often fluctuate with the current prime rate.

10. This spread did, however, become significantly negative in 1973-74 (averaging -32 basis points) as banks competed aggressively for funds in the CD market during this "tight" money period (see chart 2).

Rates are set at a small mark-up over the banks' marginal cost of funds, and are thus below the prime rate but still above prime commercial-paper rates. These loan programs appear to be designed to complement (rather than compete with) the paper market, and to compete with other banks, by providing a service to paper issuers when the paper market is temporarily congested. Two of the banks have stated that the desired volume of such lending is small, since the loans are not particularly profitable (if at all) to them.

11. For example, assume the following structural model:

$$CP_s = a(RP - RCP) + bX$$

$$CP_d = c(RCP - RCD) + dZ$$

where CP_s = supply of commercial paper outstanding

CP_d = demand for commercial paper outstanding

RP, RCP, RCD = yields defined in text,

X, Z = other explanatory variables.

The corresponding reduced form equation for CP is:

$$CP = \frac{ac}{a+c} (RP - RCD) + \frac{bc}{a+c} X + \frac{ad}{a+c} Z.$$

12. As discussed on page 43, this involves using the short-term commercial and industrial loans of selected large weekly reporting banks.

13. See Nevins D. Baxter, **The Commercial Paper Market**, The Bankers' Publishing Company, 1966.

14. Morgan Guaranty Trust Company, "The New Dynamics of the Market for Business Credit", **The Morgan Guaranty Survey** (March 1978), pp. 6-11.
15. See Nevins D. Baxter, **The Commercial Paper Market**, *op.cit.*
16. Frederick C. Shadrack and Frederick S. Breimyer, "Recent Developments in the Commercial Paper Market", **Monthly Review**, Federal Reserve Bank of New York, December 1970, pp. 280-291.
17. It should be noted, however, that in June 1970, the credit "crunch"-induced boom in commercial paper was abruptly but temporarily halted when the Penn Central Transportation Company defaulted on its \$82 million of commercial paper outstanding. The Federal Reserve acted quickly in the ensuing crisis, making a large volume of loans to commercial banks through its "discount window", and raising Regulation Q interest-rate ceilings on 30-89-day large negotiable certificates of deposit. These actions accommodated banks in making loans to credit-worthy customers affected by the crisis. Thus the precipitous decline in nonfinancial commercial paper outstanding lasted only three weeks. However, investors remained extremely selective regarding commercial-paper issuers at least through the end of 1970, and thus tended to retard the growth of commercial paper relative to bank loans.
18. In order to counteract potential political pressures against future prime-rate increases, First National City Bank (now Citibank) formally instituted, in October 1971, a formula approach, which explicitly tied the prime rate to a measure of the market cost of funds. The original Citibank formula set the prime for any given week at 50 basis points above a moving average of the 90-119 day dealer-placed paper rates over the previous three weeks. The result of this formula was then rounded to the nearest 25 basis-point increment to determine the prime rate. Most large banks adopted this formula or a similar one by the end of 1971. The formula mark-up has been changed a number of times since 1971, and presently stands at 125 basis points. It has served as only a rough guide for prime-rate changes, however, with the largest departures from the formula occurring during periods of rapid changes in market interest rates such as 1973-74. See Murray E. Pollakoff and Morris Budin, **The Prime Rate**, Trustees of the Banking Research Fund, Association of Reserve City Bankers, 1973.
19. For another discussion of these prime-rate increases, see Randall C. Merris, "The Prime Rate Revisited", **Economic Perspectives** (Federal Reserve Bank of Chicago, July/August 1977), pp. 17-20.
20. See Federal Deposit Insurance Corporation, **Annual Report** (1976), pp. 245-259.
21. See Federal Deposit Insurance Corporation, **Annual Report** (various years). Also see Jack Beebe, "A Perspective on Liability Management and Bank Risk," *op. cit.*, for an analysis of bank capital positioning during this period.
22. These data were obtained from a sample of 48 large banks reported in Board of Governors of the Federal Reserve System, "Survey of Terms of Bank Lending", Statistical Release G.14. This information first became available in February 1977.
23. Two other factors have also probably had an important influence on the spread—decreases in reserve requirement costs, and increases in other non-interest bank operating costs. (See Federal Reserve System's **Functional Cost Analysis**). These factors are not emphasized in the text for three reasons. First, information on the quantitative changes in operating costs is scanty. Second, the two effects have tended to offset each other during the period in question. Third, other explanations of the increased prime-rate spread appear to be sufficient.
24. This spread may have been reduced, in part, due to competition from U.S. offices of foreign banks. See Board of Governors of the Federal Reserve System, "The Recent Growth in Activities of U.S. Offices of Foreign Banks," **Federal Reserve Bulletin**, October 1976, pp. 815-823.
25. Robert B. Albertson, "Loan Demand Survey Forecasts Continued Uptrend in Business Loans," **Research: Banks** (Smith, Barney, Harris, Upham and Co., Inc., October 26, 1977). See George M. Salem, "Bank Commercial Loan Demand—An Analysis of Secular Trends," **Institutional Research**, (Bache, Halsey, Stuart, Shields, Inc. October 6, 1978), for an analysis of how commercial paper, U.S. offices of foreign banks, corporate liquidity and other factors have affected secular developments in business-loan demand at large money-center banks.
26. George M. Salem, "Bank Loan Demand: Competition from Commercial Paper Increasing", **Banking Industry Comment**, (Reynolds Securities, July 21, 1977).
27. With the current 6-percent reserve requirement on large negotiable CD's, only 94 percent of funds obtained can be loaned out. Thus, with the CD rate at 8.67 percent, the market cost of funds per dollar loaned equals $8.67 \div .94 = 9.22$ percent, implying a reserve requirement cost of $9.22 - 8.67 = .55$ percent.
28. Federal Reserve Bank of San Francisco, **1977 Functional Cost Analysis Special Report: National Billion Dollar Banks, 1978**.
29. Three large banks have recently initiated loan programs available to some, but not all, customers with bank credit lines to back commercial paper issues. Rates are set at a small mark-up over the banks' marginal cost of funds, and are thus below the prime rate but still above prime commercial-paper rates. These loan programs appear to be designed to complement (rather than compete with) the paper market, and to compete with other banks, by providing a service to paper issuers when the paper market is temporarily congested. Two of the banks have stated that the desired volume of such lending is small, since the loans are not particularly profitable (if at all) to them.
30. This policy implication is developed by Jack Beebe in "A Perspective on Liability Management and Bank Risk," *op. cit.*

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