

# Interest Rate Swaps: Risk and Regulation

*By J. Gregg Whittaker*

The rapid growth of “off-balance sheet” activities by banks in recent years has given rise to a number of concerns. These activities create commitments for banks that are not reflected on their balance sheets as either assets or liabilities. As a result, it is often difficult for investors, regulators, and even bank managers to determine the risk exposure of banks engaging in such activities. One of the most rapidly growing of these activities is the interest rate swap.

While enhancing financial market efficiency in many respects, interest rate swaps give rise to new risks for banks. Bank regulators are concerned that the role played by banks in the swap market may lead banks to incur too much risk or risk for which they are not adequately compensated. Current regulatory capital requirements for banks apply only to risks arising from a bank’s assets. And since swaps are not considered an asset and

do not affect the balance sheet, they can lead to increased risk exposure without requiring the bank to hold additional amounts of capital. Therefore, the potential may exist for excessive risk-taking and underpricing of this highly leveraged instrument. Bank regulators have recently proposed revising capital guidelines to help control these risks.

The first section of the article explains how interest rate swaps work and documents the recent growth of the swap market. The second section explores the risks of swaps and risk management techniques. The third section discusses proposed regulatory changes and other possible improvements for limiting the risks for banks involved in interest rate swaps.

## **What are interest rate swaps?**

An interest rate swap is a financial transaction in which fixed interest is exchanged for floating interest of the same currency. Swaps were originally liability based exchanges of interest payment streams on debt obligations. More recently, however, asset based swaps have been

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arranged as well, exchanges of interest income streams on assets. Swaps are among the most versatile of all financial instruments. They can be used to obtain cheaper funds or to manage interest rate risks. All swaps are based on one central principle: one participant exchanging an advantage in one credit market for an advantage available to another participant in a different credit market. The advantage can be reduced costs or greater availability of funds. Swaps enable borrowers to tap markets where they can obtain the best relative terms and then swap obligations to obtain the desired interest rate structure.

### *Reasons for swaps*

Some interest rate swaps are arranged to reduce borrowing costs through financial arbitrage. There are opportunities for financial arbitrage when borrowing costs for the same borrowers differ across various credit markets. For instance, bond market investors are very concerned about credit quality because they are lending for long periods at a fixed interest rate. Because there is no opportunity to adjust the lending rate to reflect changes in the financial condition of the bond issuer, the yield on fixed-rate bonds typically includes a large risk premium for bonds issued by firms that are perceived as having a relatively high risk of default. The risk premium for such firms is much smaller in floating-rate banking markets where lenders can adjust the lending rate in line with the financial condition of the borrower. Therefore, while a firm with a lower credit rating has a comparative advantage in raising short-term floating-rate debt, a firm with a high credit rating has a comparative advantage in raising long-term fixed-rate debt. As a result, a bond issue in conjunction with an interest rate swap can lower the cost of floating-rate funds for a highly creditworthy company. The lower rated firm that must pay a relatively large premium for borrowing in the bond market can use a swap to

lower its costs by borrowing short-term floating-rate funds and swapping for the fixed-rate payments of the more creditworthy firm.<sup>1</sup>

Interest rate swaps can also be used to reduce interest rate risk. For example, savings and loan institutions (S&L's) have traditionally funded fixed-rate mortgage loans with short-term deposits. The danger of this kind of maturity mismatch was demonstrated in the late 1970s and early 1980s by the heavy losses S&L's sustained as a result of the rise in interest rates. An S&L can now swap its floating-rate interest payments on short-term deposits for fixed interest payments, or it could swap its fixed-rate interest income on mortgage loans for floating-rate interest income. By doing so, it better matches the income stream on its assets to the payment stream on its liabilities, thereby reducing the risk of a capital loss due to an unexpected increase in interest rates.

### *Participants in swap markets*

There are two classes of participants in the swap market: end-users and intermediaries. End-users are those who want to swap their interest payment stream for a different type of payment stream. Intermediaries help arrange the swaps, collect and disburse the payments that are swapped, and assume the risk of default by end-users.

A variety of end-users participate in the swap market. International lending agencies were among the first to engage in swaps. Sovereign governments and their agencies also were early participants. Most recently, nonfinancial corpora-

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<sup>1</sup> The lower rated firm does, however, incur rollover risk—the risk that its financial condition will deteriorate to the point that short-term financing is either unavailable or available only at higher rates. Even if the firm could continue to borrow, the floating-rate interest it receives in the swap could be insufficient to cover the higher costs of its floating-rate debt.

tions and many financial institutions have begun participating in the swap market as well.

The role of large commercial banks and securities firms as intermediaries has increased in recent years. When the swap market began in the early 1980s, intermediaries served merely as brokers. In arranging swaps between end-users, intermediaries had the obvious disadvantage of having to find end-users with equal but opposite needs. Recognizing the limitation of arranging swaps that required a "double coincidence of wants," intermediaries began playing a larger role.

Intermediaries now maintain inventories of standardized swaps and some even quote prices at which they will buy and sell swaps from qualified end-users. Instead of just arranging swaps between end-users, intermediaries themselves now enter into swaps with end-users even before finding offsetting swaps with other end-users. What may appear to be a single swap between two end-users is actually two swaps in which the intermediary itself has a contractual obligation to each of the end-users. Intermediaries have thus come to play the role of dealers, increasing the liquidity of the swap market and making it more convenient for end-users to arrange swaps.

Intermediaries earn fees for arranging and servicing swaps. The fees depend on the complexity of the swap agreement and, therefore, on the amount of services the intermediary provides. Fees on a standard interest rate swap usually range from 7 to 12 basis points a year but can be higher for more complex swaps, especially those tailored specifically to the needs of the customer. Since swaps are frequently arranged in conjunction with the initial borrowing of funds, the intermediary may cut fees on the swap to get other business from the customer. For example, a bank may charge a lower fee on a swap in exchange for the lead underwriter position in an accompanying Eurobond issue.<sup>2</sup>

### *How swaps work*

An intermediary can arrange a swap that allows the end-users to reduce their borrowing costs or better match their interest payments with their expected income streams. The interest payments to be swapped are based on a "notional" amount of principal—notional in that the principal is not actually exchanged but merely serves as the basis for calculating the amount each end-user pays. Only the interest payments are swapped.

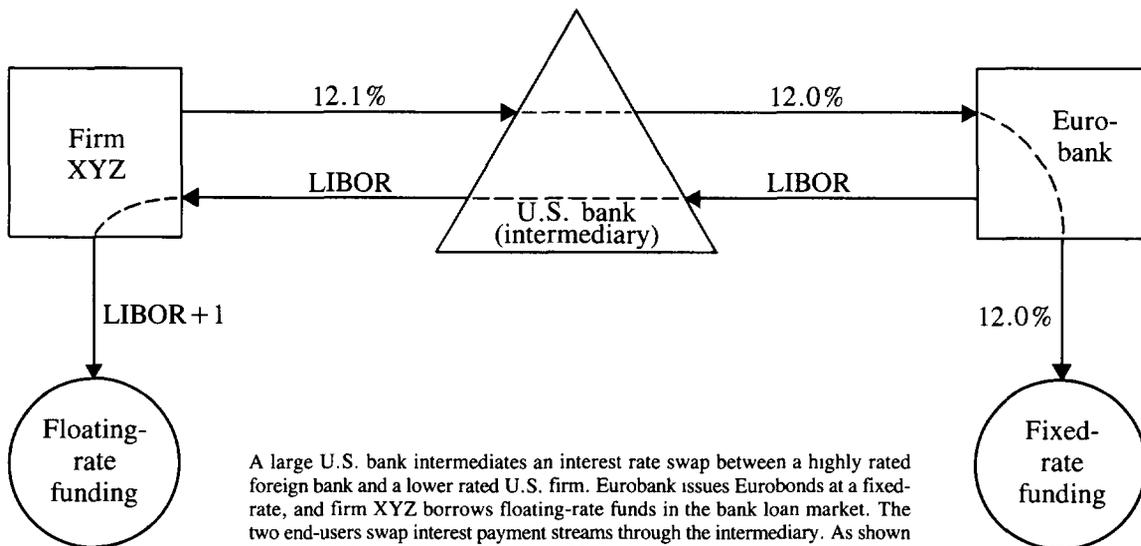
An example shows how both end-users can benefit from an interest rate swap. Suppose company XYZ, a nonfinancial firm with a low credit rating, seeks fixed-rate dollar funds for a long-term investment project, while Eurobank, a bank that has a high credit rating, seeks floating-rate dollar funds to finance its short-term loan portfolio. Since Eurobank has a higher credit rating than XYZ, it can borrow funds of any type at lower rates than those available to XYZ. Assume company XYZ can borrow floating-rate funds at 1 percent over LIBOR (the London Interbank Offering Rate) while Eurobank can borrow at 0.5 percent over LIBOR. Further assume that Eurobank can borrow at 12 percent in the bond market while XYZ can borrow at a 14 percent fixed rate. While Eurobank has an advantage in both credit markets, it has a greater advantage in one market than in the other. Compared with Eurobank, XYZ must pay a two percentage point premium for fixed-rate funds but only a 0.5 percentage point premium for floating-rate funds. This difference creates a borrowing wedge that can be exploited through an interest rate swap.

Chart 1 shows the mechanics of an interest rate swap. Eurobank issues seven-year fixed-rate Eurobonds at 12 percent, and XYZ takes out a

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<sup>2</sup> A Eurobond is a bond issued outside the confines of any national capital market and may or may not be denominated in the currency of the issuer

**CHART 1**  
**Interest rate swap**



A large U.S. bank intermediates an interest rate swap between a highly rated foreign bank and a lower rated U.S. firm. Eurobank issues Eurobonds at a fixed-rate, and firm XYZ borrows floating-rate funds in the bank loan market. The two end-users swap interest payment streams through the intermediary. As shown in Table 1, this swap lowers the cost of funds to both end-users while generating fee-based income for the intermediary.

floating-rate bank loan on which it pays LIBOR plus 1 percent. Eurobank and XYZ then swap interest payments through the intermediary. XYZ pays Eurobank's fixed-rate obligation of 12 percent, plus an intermediation fee of 0.1 percent to the large U.S. bank. Eurobank pays the LIBOR part of XYZ's floating-rate interest payment, leaving XYZ to pay the remaining 1 percent. Thus, Eurobank has a floating-rate obligation to pay the LIBOR rate, while XYZ has a total or "all-in" fixed-rate obligation of 13.1 percent (12 percent + 0.1 percent + 1 percent).

As a result of the swap, both Eurobank and XYZ are able to obtain the interest rate structures they desire and to reduce their borrowing costs. Eurobank is financing its floating-rate loan portfolio with floating-rate funds, while XYZ has locked in the borrowing cost to finance its long-term investment project by swapping for fixed-rate funds. And, as shown in Table 1, both have

done so at reduced costs. The swap enables Eurobank to reduce its cost of floating-rate debt by 50 basis points from LIBOR + 0.5 percent to LIBOR. XYZ's cost of fixed-rate debt has fallen from 14.0 percent without the swap to 13.1 percent with the swap, a savings of 90 basis points.

The intermediary earns an intermediation fee based on the spread between the fixed rate paid and the fixed rate received. Swap prices are quoted as a spread over a fixed-rate index versus a floating-rate index, such as the seven-year Treasury bond rate plus 60 basis points versus the six-month LIBOR rate. The bank gives a bid price to the floating-rate payer and an offer price to the fixed-rate payer. The bid is the fixed rate that the bank pays in a swap and the offer is the fixed rate it receives. In Chart 1, the bid is 12 percent and the offer is 12.1 percent. The intermediary's profit is the offer minus the bid, or ten

**TABLE 1**  
**Analysis of swap payments**

<u>XYZ's cost</u>		<u>Intermediary's fees</u>		<u>Eurobank's costs</u>	
Payment on debt: LIBOR + 1.0%		Receipt from XYZ: 12.1%		Payment on debt: 12.0%	
+ Payment to intermediary: 12.1%		- Payment to XYZ: LIBOR		+ Payment to intermediary: LIBOR	
- Receipt from intermediary: LIBOR		+ Receipt from Eurobank: LIBOR		- Receipt from intermediary: 12.0%	
= All-in-cost: 13.1%		- Payment to Eurobank: 12.0%		= All-in-costs: LIBOR	
		= Total Fees: 0.1%			
<u>XYZ's saving</u>				<u>Eurobank's saving</u>	
Best fixed-rate alternative: 14.0%				Best floating-rate alternative: LIBOR + 0.5%	
- Cost with swap: 13.1%				- Cost with swap: LIBOR	
= Total saving: 0.9%				= Total saving: 0.5%	

basis points in this example. Thus, the intermediary earns a profit by arranging a swap while both of the end-users obtain funds at a lower cost.

### *Growth of swaps*

The swap market has grown rapidly in recent years. Virtually nonexistent as late as 1981, the interest rate swap market worldwide grew to about \$170 billion of notional principal outstanding by the end of 1985 and to between \$350 and \$400 billion by the end of 1986.<sup>3</sup> Thus, interest rate swaps have become an important part of the global capital market.

This rapid growth has been due to several factors. A major cause of the dramatic growth has been the increased demand for protection against interest rate risk. Heightened interest rate volatility has caused bank customers to try new techniques for matching the interest rate exposures of their assets and their liabilities. Increased com-

<sup>3</sup> Data for 1985 were taken from the International Swap Dealers Association (ISDA) 1985 annual survey. Preliminary data for 1986 were kindly provided by Kenneth McCormick, cochairman of the ISDA. Since the 1986 annual survey has not been completed, the 1986 data are based on quarterly statistical data gathered throughout the year by the ISDA.

petition also has stimulated innovation. Worldwide deregulation in the banking industry has increased the competition banks face on all sides, at home and abroad. Competition has been further stimulated by technological advances in telecommunications and computer systems that have increased international financial mobility. As a result, banks have tried to find new ways of generating income, while borrowers have sought lower borrowing costs and protection from interest rate risk.

### **Risks and risk management**

The role of banks as intermediaries in swap transactions has exposed them to new and varied risks. The risks arise because, under certain circumstances, swaps can cause banks to suffer capital losses. There is also concern that banks may be underpricing their services and are not being adequately compensated for the risks they bear. However, banks have developed methods for limiting the risks involved in intermediating swaps.

Intermediation of a swap requires that the bank enter into a financial contract with each of the end-users. In the example above, the U.S. bank that arranges the swap between company XYZ and Eurobank has a contractual obligation to each. Instead of the two end-users agreeing to exchange interest payments with one another directly, they each enter into separate contracts with the U.S. bank acting as the intermediary. Firm XYZ agrees to pay the U.S. bank a fixed-rate stream of payments in exchange for the floating-rate stream from the bank, and Eurobank agrees to pay the U.S. bank a floating-rate stream of payments in exchange for the fixed-rate stream from the U.S. bank. Neither end-user has any obligation to the other. They may not even know the other's identity. The intermediary, in effect, enters into two separate contracts that are offsetting except for the fee earned for serving as the intermediary.

Their role as intermediaries between end-users in interest rate swaps exposes banks to two types of risk, price risk and credit risk.

#### *Price risk*

Price risk occurs from banks "warehousing" swaps—from arranging a swap contract with one end-user without having arranged an offsetting swap with another end-user. Until an offsetting swap is arranged, the bank has an open swap position and is vulnerable to an adverse change in swap prices.

The most common reason for a change in swap prices is a change in interest rates—a change that could cause the bank to suffer a loss on its swap. For example, if the bank has an open swap in which it pays XYZ a variable interest rate in exchange for a fixed interest rate, an increase in market interest rates would lead to an increase in the payments the bank makes but no change in the payments it receives. In this case, the bank incurs a capital loss just as it would if it were funding long-term fixed-rate loans with floating-rate deposits. Banks warehouse only a small amount of swaps relative to the total amount of swaps outstanding, however. As a result, only a small portion of a bank's total swap portfolio is subject to price risk.

Banks hedge to limit the price risk of an open swap. The predominant means of hedging is to offset an open swap position through the purchase or sale of Treasury securities. A bank that is a fixed-rate payer in an open interest rate swap can limit the interest rate risk of that position by buying a Treasury security whose price will change by the same amount as the price of the swap, but in the opposite direction. With this hedge, an unexpected change in interest rates will not affect the market value of the banks' overall portfolio because the resulting change in the price of the swap will be offset by a corresponding change in the price of the Treasury security. Because buy-

ing Treasury securities outright requires the bank to commit capital, however, banks often use the futures market rather than the cash market to hedge their open swap positions with maturities short enough to be offset with a futures contract.<sup>4</sup>

Although hedging through use of Treasury securities is widespread, it is difficult to entirely offset the risk of an open swap position in this way. It is difficult to design a position in Treasury securities—cash or futures—that exactly offsets the interest rate risk of a swap. In practice, banks can offset only a portion of the price risk of a swap through hedging in the Treasury securities market. For this reason, banks are usually reluctant to have substantial open swap positions on their books for long periods.

### *Credit risk*

Credit risk is the main concern of regulators and banks. Banks' credit risk exists on all swaps in which the bank is the intermediary between two end-users. Suppose a bank enters into two perfectly matched, offsetting swaps with XYZ and Eurobank. If interest rates change, the value of one swap will fall while the value of the other rises by an equal amount, providing the bank with a hedge against price risk. But if one of the end-users defaults, the bank loses the hedging value of the offsetting swap and may suffer a capital loss.

Consider again the previous example where the bank pays fixed-rate interest to Eurobank in exchange for floating-rate interest, while the bank pays floating-rate interest to XYZ in exchange for fixed-rate interest. If interest rates fall and XYZ subsequently defaults, the bank is left with an obligation to continue making the agreed upon fixed-rate payments to Eurobank, but is now

receiving less in floating-rate payments. On the other hand, suppose that Eurobank, the floating-rate payer, defaults after interest rates have risen. The bank is now left with an obligation to pay XYZ the higher floating rate, but continues to receive the same fixed rate. In both cases, the bank serving as intermediary would incur a capital loss. Changes in interest rates, therefore, can cause losses on banks' swap activities even if the bank immediately offsets one swap with another. Because losses can be incurred in this case only if one of the end-users defaults, this type of risk is called credit risk.

Two of the most critical aspects of managing credit risk in the swap market are the banks' pricing procedures and the degree of portfolio diversification. Banks must make sure that the price of the service they provide adequately reflects the risk inherent in the arrangement. Just as investors demand a higher yield on bonds issued by a firm with a Baa credit rating than on commercial paper issued by a firm with a Aaa credit rating, banks must charge more for long-term swaps with end-users that have a low credit rating than for short-term swaps with end-users that have a high credit rating. In both cases, the risk of entering into a financial contract varies directly with the length of the contract and the creditworthiness of the other party to the contract. An individual risky swap need not endanger the financial position of the bank as long as the bank is adequately compensated for the risk and has diversified its swap portfolio so that default by any one customer or group of customers does not substantially impair the bank's earnings or capital position.

The credit risk of interest rate swaps can also be limited by the enforcement of strict credit standards. Perhaps the most important means of limiting risk is to enter into swaps only with credit-worthy customers. Typically, the credit department of a bank must agree to the swap before the contract is made. Moreover, banks ordinarily monitor the customer's financial position through-

<sup>4</sup> See *Recent Innovations in International Banking*, Bank for International Settlements, April 1986, p. 48.

out the life of the swap. Banks may require less creditworthy customers to post collateral or use other credit enhancements that further reduce the risk to the bank in case of a default. The amount of protection collateralization provides is uncertain, however, because the legal status of collateral posted against swaps has not been tested in court. And as the swap market continues to grow, regulators are concerned that credit standards may deteriorate as banks try to accommodate more and often less creditworthy customers.

## Regulation of swaps

Regulators are concerned about the risks involved in swap intermediation. However, prohibiting bank participation in the swap market could reduce financial market efficiency. To strike a balance, regulators are studying ways to impose capital requirements on banks' swap activities.

### *Reasons for concern*

Even though banks have developed methods of limiting the risks of swaps, concerns have been expressed about the effect swaps have on the safety of banks and the soundness of the financial system. Some of these concerns result from the rapid growth of swaps. The \$400 billion increase in interest rate swaps over the past six years raises questions about whether end-users, financial regulators, and the banks themselves fully understand the risks inherent in swaps. The questions are even more troublesome because nearly all the growth has occurred during a period of declining interest rates. The risk characteristics of interest rate swaps may change when interest rates increase. Moreover, a recession could cause financial stresses that could lead to defaults on swaps with a cumulative effect on the financial position of intermediaries. Although such issues cannot be resolved now, planning for such adverse circumstances seems wise.

Another concern is that banks, possibly unfamiliar with the full range of risks that could be encountered, may be too aggressive in pricing interest rate swaps. Only if the financial institutions offering new financial instruments fully understand the risks inherent in those instruments can the pricing fully reflect the risks. However, given the disagreements among the banks themselves regarding the appropriate means of measuring risk and pricing swaps, regulators are concerned that banks may be underpricing their services. The interest rate swap market has become so competitive in recent years that the margins for banks acting as intermediaries have been substantially reduced. There is a fear that to gain market share in interest rate swaps, intermediaries may be underpricing the services they provide—that the return for intermediating interest rate swaps may not be commensurate with the risks.

This concern is exacerbated by existing strains on the banking system caused by losses from loans to less developed countries, energy firms, and the agricultural and real estate sectors. Losses incurred in traditional banking business may make some banks overzealous in trying to earn fees from off-balance sheet activities. The temptation to do so is more acute because the deposit insurance system, which bases insurance fees on total assets rather than on the risk of the activities, can encourage excessive risk-taking by banks.<sup>5</sup> Although there is no evidence that banks engaging in swaps have suffered substantial losses as a result of these activities, there is a danger that new entrants into the swap market or existing participants in adverse financial circumstances might be too aggressive in seeking out new swap business to compensate for losses in traditional lending activities.

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<sup>5</sup> For a detailed discussion of the moral hazard problem, see William R. Keeton, "Deposit Insurance and the Deregulation of Deposit Rates," *Economic Review*, Federal Reserve Bank of Kansas City, April 1984.

A further concern arises from the nature of swaps themselves. Interest rate swaps can change the risk exposure of end-users or intermediaries. This capability can be used to reduce interest rate risk by hedging existing assets or liabilities. But the same capability also could be used to speculate on future movements in interest rates. A bank that had a "view" on the direction of interest rate movements could use the highly leveraged method of entering into unmatched interest rate swaps to bet the money of shareholders, uninsured depositors, and the deposit insurance system in the hope of earning large profits. But the counterpart of the chance for making large profits is the risk of incurring large losses. For example, a bank that believes that interest rates will rise could easily take an open position in which it is the fixed-rate payer on a substantial amount of swaps. If interest rates were to subsequently fall, however, the bank would suffer a significant capital loss.

#### *Financial market safety and efficiency*

One possible response to such concerns about the effect of interest rate swaps on the safety and soundness of the banking system could be for regulators to prohibit bank participation in the swap market altogether. However, such an outright prohibition would place banks at a disadvantage relative to securities firms in competing for the business of corporate customers with increasingly complex needs to raise funds in capital markets. Large bank holding companies are engaging increasingly in a wide range of capital market activities, both in the domestic credit markets and in foreign markets. Inability to offer interest rate swaps in conjunction with borrowing in Eurodollar markets, for example, could erode banks' earnings from capital market services for their customers. Moreover, inability to provide a full range of services could impair long-standing customer relationships between banks and corporate customers.

Prohibiting banks from participating in interest rate swaps could also reduce the safety of financial markets. Interest rate swaps can contribute to the safety of financial markets by providing a means of hedging interest rate risk. Financial futures contracts do not ordinarily extend beyond two years. Therefore, interest rate swaps provide the most efficient method for both financial and nonfinancial businesses to guard against the adverse effects of interest rate volatility.

Swaps can also enhance the efficiency of financial markets by allowing banks to "unbundle" risks that have traditionally been inseparable, allowing risks to be redistributed to those best able to bear them. For instance, end-users can use swaps to manage the interest rate risk of their portfolios and transfer the credit risk of the swap itself to the intermediary, who may be in a better position to manage the credit risk.<sup>6</sup> More generally, swaps can be used to improve the efficiency of financial markets by reducing borrowing costs. Borrowers can use swaps to improve the terms of loans and increase the availability of funds by tapping a wider range of credit markets.<sup>7</sup>

#### *Proposed regulation*

To strike a balance between concern over the risk of interest rate swaps and recognition of the valuable functions swaps serve, the bank regu-

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<sup>6</sup> While swaps may improve the efficiency of financial markets, they may also increase the risk borne by the banking system by transferring credit risk from the end-users to the banks as discussed in the preceding section.

<sup>7</sup> Moreover, several studies suggest that long-term fixed-rate financing may create incentives for low-rated firms to underinvest and shift from low-risk to high-risk investments. Short-term floating-rate financing eliminates these adverse tendencies but exposes firms to interest rate risk. Interest rate swaps eliminate both problems. See Larry D. Wall, "Interest Rate Swaps in an Agency Theoretic Model with Uncertain Interest Rates," Federal Reserve Bank of Atlanta Working Paper 86-6.

latory agencies have proposed regulatory changes to help control the risks from swaps. The Board of Governors of the Federal Reserve System has requested public comment on a proposed risk-based capital framework for banks and bank holding companies.<sup>8</sup> The proposal is the result of an agreement between the U.S. bank regulatory agencies and the Bank of England. Goals of the proposal include making regulatory capital requirements more sensitive to differences in the risk of banking institutions and assessing capital requirements on certain off-balance sheet activities, such as interest rate swaps.

Under the proposal, banks will be required to hold capital against assets and certain off-balance sheet commitments in proportion to each item's credit risk. The proposed measure, which will supplement existing capital adequacy ratios, imposes a minimum ratio of adjusted primary capital to total risk-weighted assets. The face amount of off-balance sheet items is multiplied by a "credit conversion factor." The resulting amount, along with on-balance sheet assets, is assigned to one of five risk categories according to the relative risk of each asset. A designated percentage of each asset, depending on the risk category to which it is assigned, will be included in calculating risk-weighted assets, which in turn will be used to help determine the capital requirements of the bank.

Regulators are currently evaluating ways of incorporating the risk from swap activities into the proposed measure. Among the issues being considered is how best to convert the credit risk of a swap into an on-balance sheet credit equivalent that can be incorporated into the proposed framework for setting minimum capital requirements for banks.<sup>9</sup>

<sup>8</sup> Federal Reserve Board proposal, Docket No. R-0567.

<sup>9</sup> Assessing the degree of risk to banks from their swap activities is difficult, though. The amount of exposure is certainly much

### *Additional means of limiting risk*

Cooperation among the banking regulatory agencies and the Securities and Exchange Commission, which regulates securities firms, regarding new capital guidelines is desirable for controlling the risk of swaps. In addition to commercial banks, large securities firms also play a major role in the swap market. The recent risk-based capital proposal does not apply to securities firms, however, even though the interrelationships among major swap dealers ties the safety of individual swap portfolios to one another. Consequently, regulatory changes for commercial banks alone may not be adequate to ensure that risk in the swap market is properly controlled. Moreover, more stringent requirements for banks than for securities firms raise questions about how level the playing field is for providing financial services.

More complete and more uniform disclosure of risk from swaps would also be desirable. The rules pertaining to the disclosure of banks' swap activities do not ensure adequate reporting of the risks involved. Any activity that may have a "material effect" on the financial condition of the bank should in principle be disclosed in the footnotes of the bank's financial statements. But many accountants in the United States apparently

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less than the amount of notional principal involved in swaps. Swaps do not involve the risk of the loss of principal but only the risk of being obligated to pay a higher interest rate than is received. Moreover, most swaps are offsetting so that no risk is involved if interest rates change unless one of the end-users defaults. And banks can use interest rate swaps as a hedge against other interest-sensitive assets or liabilities. Furthermore, credit risk in the swap market may not be as extensive as some fear. Unlike default on a conventional loan, the default of an end-user may have no adverse effects on a bank at all. The default of an end-user does not generally lead to a loss for the bank if interest rates do not change, since the bank could enter into another swap on the same terms and restore the lost payment flows. And if interest rates do change, the default of an end-user is just as likely to benefit the bank—by allowing the bank to enter into a new swap on better terms—as to cause a loss.

do not consider swaps to be material and do not include them in the financial statements accessible to the general public. As a result, disclosure of the magnitude of swap activities and of the resulting risk exposure is currently lacking.<sup>10</sup>

Heightened reporting standards would help ensure that swaps do not cause undue risks. The Financial Accounting Standards Board's emerging issues task force is currently considering the problems posed by off-balance sheet activities, including swaps, and is expected to propose accounting modifications. Modifying standards to require that the effect of swaps on a bank's interest rate sensitivity, liquidity, and credit exposure could also help regulators and investors assess a bank's strength.<sup>11</sup> U.S. banks since 1983 have been required to disclose the amount of off-balance sheet activities, including swaps, in their financial statements filed quarterly with bank regulatory agencies, and many banks have voluntarily increased disclosures of swaps and other off-balance sheet activities in their annual reports. But disclosing the amount of swap activity is not in itself sufficient to determine the degree of risk associated with that activity.

Uniformity of reporting standards is, therefore, also necessary. Unless banks adhere to uniform reporting standards, increased disclosures alone may be insufficient to end the confusion regarding off-balance sheet risk. Bankers and bank regulators should agree on a set of disclosure and exposure measurement standards for swaps. An industry-sponsored dictionary of off-balance sheet risk analysis has been suggested by some. One obvious measure to be used uniformly for

disclosure of swap-related exposure is the exposure measurement that will ultimately be used by bank regulatory agencies for capital adequacy purposes. Such actions would serve to reduce confusion and enhance market safety.

Self-regulation in the swap market is another complementary way of dealing with risk. The commercial banks and securities firms most actively engaged in the swap market have formed an organization to standardize the terms of swap contracts and ensure good business practices in the swap market.<sup>12</sup> This organization is the International Swaps Dealers Association (ISDA). While the ISDA has made substantial progress, the methods of measuring and pricing risk still vary widely among swap market participants. Moreover, internal controls, such as prompt completion of swap documentation, are inadequate at times. Continued progress by the ISDA in resolving these and other problems would further reduce the risks in the swap market and reaffirm the commitment of swap market participants to the safety of financial markets.

## Conclusion

Swaps are now an integral and generally beneficial part of the financial system. These activities are the result of a number of factors, including increased competition in banking and increased demands for protection from interest rate risk. Swaps offer banks an attractive array of fee-generating and portfolio management techniques, but also expose banks to new and varied risks. The leverage capacity of swaps—and other concerns—has caused bank regulatory agencies to consider these activities for inclusion in a risk-based capital adequacy proposal.

<sup>10</sup> For a further discussion of accounting for interest rate swaps, see *Recent Innovations in International Banking*, Bank for International Settlements, April 1986, pp. 57-59.

<sup>11</sup> See Kenneth F. Cooper, "Coming to Grips with Off-Balance Sheet Risks," *The Bankers Magazine*, November-December 1985.

<sup>12</sup> International Swap Dealers Association, Inc., *Code of Standard Wording, Assumptions and Provisions for Swaps*, 1985.