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FINANCIAL INNOVATION AND CURRENT TRENDS IN U.S. FINANCIAL MARKETS

Frederic S. Mishkin

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ABSTRACT

This paper discusses recent developments in U.S. financial markets and provides an economic analysis of why various recent financial innovations have occurred. This will not only provide us with a better understanding of existing financial markets in the United States and why they have been undergoing so much change in recent years, but it also may provide us with clues as to where our financial system may be heading.

Frederic S. Mishkin
Graduate School of Business
Uris Hall 619
Columbia University
New York, NY 10027
(212)280-3488

I. Introduction

Financial markets and institutions in the United States have been undergoing revolutionary changes in recent years. Twenty, or even ten years ago, many of the financial instruments and institutions that we now take for granted did not exist. What explains this revolutionary change in the U. S. financial system and the proliferation of new financial products?

This paper discusses recent developments in U. S. financial markets and provides an economic analysis of why various recent financial innovations have occurred. This will not only provide us with a better understanding of existing financial markets in the United States and why they have been undergoing so much change in recent years, but it also may provide us with clues as to where our financial system may be heading.

II. The Forces Behind Financial Innovation

Financial institutions develop products to satisfy their own needs as well as those of their customers. As in other industries, the key driving force behind innovation is the search for profits. Changes in the economic environment will stimulate a search for innovations that are likely to be profitable. From this perspective, it is not surprising that innovations in the financial industry are stimulated by many of the same factors (changes in technology and market conditions) that stimulate innovation in other industries. However, because financial institutions face more restrictive regulations than most firms in other industries, regulation is an additional important factor in financial innovation.

Starting in the 1960s, individuals and financial institutions operating in financial markets in the United States were confronted with drastic changes

in the economic environment: Inflation and interest rates climbed sharply and became harder to predict, while computer technology advanced rapidly. Financial institutions found that many of the old ways of doing business were no longer profitable: financial products they had been offering to the public were not selling. Many financial intermediaries found that they were no longer able to acquire funds with their traditional financial instruments, and without these funds they would soon be out of business. In order to survive in the new economic environment, financial institutions had to research and develop new products that would prove profitable. In their case, necessity was the mother of innovation. Even in businesses (financial and otherwise) that were not threatened by the new economic environment, entrepreneurs recognized that changes in the financial environment could be profitably exploited.

To expand on this economic analysis of financial innovation, we now turn to the specific forces that have been driving financial innovation -- changing market conditions, advances in technology, and regulation -- and look at how they stimulated the development of new financial products and markets.[1]

CHANGING MARKET CONDITIONS

The most significant change in market conditions in recent years has been the dramatic increase in the volatility of interest rate movements. In the 1950s the interest rate on three-month Treasury bills fluctuated between 1 and 3.5%, while in the 1970s it fluctuated between 4 and 11½%. This volatility in interest rates has become even more pronounced in the 1980s, during which the three-month T-bill rate ranged from 5% to over 15%. Large fluctuations in interest rates lead to substantial capital gains or losses on long-term securities and

[1]For an extensive overview of U. S. financial markets and further discussion of the process of financial innovation, see Mishkin (1989).

greater uncertainty about returns on investment. The risk that is related to the uncertainty about interest rate movements and returns is called interest-rate risk, and high volatility of interest rates, such as we've seen in the 1970s and 1980s, leads to a higher level of interest-rate risk.

Since a change in the economic environment would stimulate a search for profitable innovations, we would expect an increase in interest-rate risk to spur the creation of new securities and financial markets. For example, a higher level of interest-rate risk means that debt securities, like long-term certificates of deposit (CDs), become less attractive to investors because of their increased risk and so issuers of these securities have to pay higher interest rates to induce investors to buy them. Financial institutions such as banks would have great incentives to develop securities with lower interest-rate risk and thus lower interest rates; the resulting lower interest costs for acquired funds would lead to higher profits.

Consistent with this analysis was the development of variable-rate certificates of deposits in 1977 by the Morgan Guaranty Bank (New York). With a variable-rate CD, an investor is subject to smaller price fluctuations when interest rates change. Hence they have become quite popular, allowing Morgan Guaranty and other banks to issue them to obtain more funds at a lower interest cost and thus earn higher profits.

Like other investors, financial institutions find that lending is more attractive if interest-rate risk is lower. To reduce interest-rate risk, in 1975 savings and loans in California began to issue adjustable-rate mortgages, mortgage loans on which the interest rate changes when a market interest rate changes (usually the Treasury bill rate or a measure of the cost of funds to California thrift institutions). Because adjustable-rate mortgages allow mortgage-issuing institutions to earn higher interest rates on mortgages when rates rise, profits are kept higher during these periods.

This attractive feature of adjustable-rate mortgages has encouraged mortgage-issuing institutions often to issue adjustable-rate mortgages with lower initial interest rates than on conventional fixed-rate mortgages, making them popular with many households. However, because the mortgage payment can increase with variable-rate mortgages, many households continue to prefer fixed-rate mortgages. Hence both types of mortgages are widespread.

Another financial innovation that has stemmed from increased interest-rate risk is the interest-rate swap. A financial institution may be locked into assets and liabilities of particular durations because of where its borrowing and lending expertise lies. However, because of a possible mismatch of durations, say it has a greater amount of interest rate-sensitive assets than it has of interest rate-sensitive liabilities, it can be exposed to substantial interest-rate risk where its profitability and firm value fluctuates with changes in interest rates. Interest-rate swaps, which first appeared in the eurobond market in 1981, enable a financial institution that has more interest rate-sensitive assets than rate-sensitive liabilities to "swap" payment streams with a financial institution that has more rate-sensitive liabilities than rate-sensitive assets, thereby reducing interest rate risk for both parties. The beauty of this arrangement is that it does not require either financial institution to rearrange its balance sheet, making interest-rate swaps a relatively low-cost way of reducing interest-rate risk. It is no surprise that with the extremely large amount of interest-rate risk in the 1980s, interest-rate swaps have become an extremely successful financial innovation.

Increased interest-rate risk has also stimulated the development of new financial markets in futures, options and related financial products. To decrease the risk they face, investors were eager to trade in new financial markets that enable them to reduce their interest-rate risk. Future markets for commodities such as wheat or pork bellies (the source of bacon), in which the seller of a contract agrees to provide a certain standardized commodity to

the buyer on a specified future data at an agreed-upon price, have been around for a long time. Futures markets in which the standardized commodity is a particular type of financial instrument did not exist until 1975. A financial futures market can enable both buyers and sellers of financial futures contracts to hedge against interest-rate risk. When interest-rate risk increased in the 1970s, the ability to hedge this risk became especially valuable, making it more likely that a large number of investors would be willing to trade in financial futures markets. In 1975, the Chicago Board of Trade (in which futures contracts for commodities such as wheat, corn, soybeans, and oats were already traded) created a futures market in Government National Mortgage Association (GNMA) securities.

The GNMA financial futures market was so successful that the Chicago Board of Trade (CBT) later opened futures markets in long-term U. S. Treasury bonds and notes, while the International Monetary Market (IMM) (a subsidiary of the Chicago Mercantile Exchange (CME)) organized a futures market in U. S. Treasury bills, bank CDs, and Eurodollars. The volume of trading in financial futures markets has grown to an extraordinary extent, and Treasury bonds and Treasury bills are now among the top ten of the 100 or so standardized commodities traded in both financial and nonfinancial futures markets.

Another financial instrument that enables investors to reduce interest-rate risk is options on debt instruments. An option contract provides the right to buy (a call option) or sell (a put option) a security at a specified price, called the exercise or strike price. An option contract in a debt instrument is like a form of insurance against interest-rate risk because it allows the investor to pay no more than a certain interest rate if she is a borrower or earn no less than a certain interest rate if she is a lender.

As we would expect, the increased volatility of interest rates in recent years has increased the demand for this type of insurance. The Chicago Board

Options Exchange (CBOE), in which options for stocks had been traded since 1973, initiated trading in options for debt instruments in 1981. Currently, the CBOE and other exchanges offer options not only for Treasury bonds and bills, but also for financial futures contracts.

Other changes in market conditions have been important to innovation in the financial marketplace. In 1975, the SEC disallowed the rules that set minimum brokerage commissions in organized stock exchanges. The sharp drop in brokerage commissions that occurred thereafter was especially pronounced for traders of large blocks of stocks, pension funds and mutual funds. The cheaper costs for these institutional investors meant that they became a more important force in the marketplace. In addition, with the recognition by many small investors that mutual funds have a hard time beating the market, index funds (mutual funds that focus on producing returns similar to those on broad market indexes) became increasingly popular. The increased importance of institutional investors along with their increased attention on tracking market indexes led to an increased demand for a more liquid market in a basket of stocks that track the market. Given this need in the marketplace, a natural extension to the already successful markets in financial futures was the development of futures trading in stock price indexes at the CBT, the CME, the Kansas City Board of Trade (KCBT), and the New York Futures Exchange (NYFE), a subsidiary of the New York Stock Exchange. The popularity of these markets has also been stimulated by their ability to help lower risk for stock market mutual and pension funds through dynamic hedging strategies (often referred to as portfolio insurance).

Another important change in market conditions has been trend towards increased corporate indebtedness, which accelerated sharply in the 1980s. The underlying reasons why an increasing amount of financing has been done by borrowing rather than through issuing equity is somewhat unclear. Increased indebtedness can be related to takeover activity and financial

reorganization such as leveraged buyouts, but we are not sure why takeovers and financial reorganizations have increased. Some economists view increased indebtedness as a positive development because they believe that it creates better incentives for managers and because takeovers help throw out weak management and replace it with stronger management.[2] With this view, it is possible to think that the increased need and desire to make American firms more competitive in the face of increased competition from abroad has stimulated takeovers and financial reorganizations that have increased corporate indebtedness. Other economists see the trend towards higher corporate indebtedness in a much less favorable light.[3] Rather it may stem from U. S. tax laws which overly favor debt over equity financing because of the deductibility of interest income, laxer enforcement of anti-trust regulations, or an irrational frenzy of takeover activity that might actually be harmful to the economy. Regardless of the reasons, the increased desire to finance with corporate debt rather than equity made it more likely that borrowers with lower credit ratings wanted access to the corporate bond market.

Before the 1980s, investment banks would only market new public issues of corporate bonds with "investment grade" bond ratings of Baa or above. Some firms that had fallen on bad times, so-called fallen angels, had corporate bond with ratings below Baa, and these bonds were pejoratively dubbed "junk bonds". In 1977, Michael Milken of Drexel Burnham sought an outlet for the increased desire of some firms to borrow in the corporate bond market by pioneering the concept of selling new public issues of junk bonds, not for fallen angels, but rather for companies that had not yet achieved investment-grade status. Since 1977, junk bonds have become an important factor in the

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[2]See Jensen (1988), for example.

[3]Friedman (1986) and Kaufman (1986), for example.

corporate bond market, with over $200 billion of junk bonds publicly issued by American corporations. Indeed, the development of this new market may have been an important stimulus to corporate indebtedness.

ADVANCES IN TECHNOLOGY

The development of new technology can stimulate financial innovation by lowering the cost of providing new financial services and instruments and making it profitable to offer them to the public. When new computer technology that substantially lowered the cost of processing financial transactions became available, financial institutions conceived new financial services and instruments dependent on this technology. Three important examples where computer technology has played an important role are securitization, the internationalization of financial markets and program trading.

Securitization is the process of transforming otherwise illiquid financial assets into marketable capital market instruments. With computer recordkeeping, financial institutions find that they can cheaply bundle together a portfolio of loans (such as mortgages) with small denominations, collect the interest and principal payments, and then "pass them through" (pay them out) to a third party. The claims to these interest and principal payments can thus be sold to a third party as a security, and the financial institution makes a profit by servicing the securitized loans (collecting the interest and principal payments and paying them out) and charging a fee. Securitization first started in the 1970s with the mortgage-backed securities developed by the Government National Mortgage Association (GNMA), and mortgage-backed securities continue to be the predominant form of securitization. Securitization of mortgages has been expanded enormously; two-thirds of all

residential mortgages are now securitized, and there are over $500 billion of securitized mortgages outstanding.

Securitization has not stopped with mortgages, however: Securitization of automobile loans, credit-card receivables, and commercial and computer leases began in the mid-1980s. Securitized automobile loans with only $900 million issued in 1985 grew to a market of $10 billion by 1986. Experts predict that nonmortgage securitization will be a market of over $100 billion within the next few years.

Computer technology also has enabled financial institutions to tailor securitization to produce securities that have payment streams considered especially desirable by the market. Collateralized mortgage obligations (CMOs), which are bonds that pass through the payments from a portfolio of mortgages, are a good example of such tailoring. Computerization enables a CMO to be spilt into four classes or "tranches." The first three classes receive interest payments according to the coupon rate on the CMO, with class 1 first receiving all principal payments and prepayments from the collateralized pool of mortgages. After the class 1 bonds are paid off, the principal payments and prepayments are used to retire sequentially the remaining classes of bonds. The fourth class, called the "accrual" or "Z" bond, receives interest and principal payments only after the other three classes are paid off. The CMO has the advantage of containing bonds of both short maturity (class 1) and long maturity (class 3 or Z), thus increasing its potential market.

Although securitization could not take place without modern computer technology (think of the cost of trying to collect payments and paying them out by hand), technology is not the only factor encouraging it; the government has played an important role too. Securitization first started with GNMA guarantees of mortgage payments and even today involves mostly assets directly or indirectly guaranteed by the government. Tax rules also have

stimulated new securitized instruments. A change of IRS regulations made possible real estate mortgage investment conduits (REMICs), which are essentially CMOs with a more favorable tax treatment.

Computer technology has also been central to the now very controversial financial innovation, program trading. Program trading involves computer-directed trading between the stock index futures and the stocks whose prices are reflected in the stock price index. Program trades are conducted to keep stock index futures and stock prices in line with each other (a process called arbitrage). For example, when the price of the stock index futures contract is far below the prices of the underlying stocks in the index, program trades buy index futures and sell the stocks. Critics of program trading assert that it has led to substantial increases in market volatility, especially in such episodes as the Black Monday Crash on October 19, 1987, or the recent 190 point decline in the Dow Jones Industrial Average on Friday, October 13, 1989 (most of which occurred in the last hour of trading). However, others do not accept the hypothesis that program trading increases stock market volatility because they believe that the prices of stock index futures primarily reflect the same economic forces that move stock prices -- the changes in the market's underlying assessment of the value of stocks.

Computers and advanced telecommunications are also a driving factor behind the internationalization of financial markets. One recent innovation is the development of Euroequities, new stock issues that are sold primarily to institutional traders abroad. Technology has clearly played a role in the development of this market since it enables dealers to use the latest technology to transmit share prices and information instantaneously around the world. Another innovation is that dealers in New York or Tokyo are not constrained by the hours of organized exchanges; they can trade at any time of day or night. The low cost of international communications is making it easier to invest abroad, and we are rapidly moving to a world in which stocks

and bonds are traded internationally twenty-four hours a day.

The impact of advanced telecommunications on the internationalization of financial markets was most dramatically illustrated by the events during the Black Monday Crash of 1987. Just before the crash on October 19, 1987, there were substantial declines in foreign stock markets. As a result, there were huge sell orders at the U. S. markets' openings on October 19 and stock prices on the U. S. exchanges plummeted. Then the crash in U. S. stocks was transmitted to foreign markets which experienced declines of similar magnitude. For better or for worse, we now live in a world of highly integrated financial markets in which we often boom or bust together.

REGULATION

Thus far we've seen that financial innovation can arise from changing market conditions and the exploitation of new technology. Similarly, regulation can lead to financial innovation by creating incentives to develop legal ways to avoid the restrictive effects of regulation. Our analysis of innovation suggests that when regulatory constraints are so burdensome that large profits can be made by avoiding them, innovations are more likely to occur.

Because the banking industry is one of the most heavily regulated industries in America, it is an industry in which such innovations are especially likely to occur. The rise in inflation and interest rates from the late 1960s to 1980 made the regulatory constraints imposed on this industry even more burdensome. Under these circumstances, we would expect the pace of financial innovations in banking to be rapid, and, indeed, it has been.

Two sets of regulations seriously restrict the ability of banks to make profits: (1) reserve requirements which force banks to keep a certain fraction of their deposits as reserves, and (2) restrictions on the interest rates that can

be paid on deposits.

The key to understanding why reserve requirement affect financial innovation is to recognize that they act, in effect, as a tax on deposits. Since the Federal Reserve does not pay interest on reserves, the cost of holding them is the interest that a bank could earn by lending the reserves out. This cost imposed on the bank is just like a tax on bank deposits which sometimes can be avoided by producing a new financial innovation.

A second set of regulations that has stimulated financial innovation are restrictions on the interest rates that can be paid on deposits Until 1980, banking legislation prohibited banks (except in a few states) from paying interest on checking account deposits and, through Regulation Q, the Federal Reserve set maximum limits on the interest rate that could be paid on time deposits. The desire to avoid these restrictions on interest rates paid on deposits (called deposit rate ceilings) also produced financial innovations.

If market interest rates rose above the maximum rates that banks paid on time deposits under Regulation Q, depositors withdrew funds from banks to put them into higher-yielding securities. This loss of deposits from the banking system restricted the amount of funds that banks could lend (called financial disintermediation).

The desire to avoid restrictions on interest payments and the "tax" from reserve requirements led to several important financial innovations in the 1970s, specifically interest bearing checking accounts and money market mutual funds.

The rise in interest rates in the late 1960s, which made the avoidance of restrictions on deposit rates more profitable, stimulated the development of new types of checking accounts. Because of Regulation Q ceilings, savings and loans and mutual savings banks were especially hard hit by the rise in interest rates in the late 60s. They lost large amounts of funds to financial instruments that paid higher interest rates, and they needed to find new sources of funds

to continue to make profitable loans.

In 1970, a mutual savings bank in Massachusetts discovered a loophole in the prohibition of interest payments on checking accounts. In effect, by calling a check a negotiable order of withdrawal (NOW), accounts on which these NOWs could be written were not legally checking accounts (even though they looked, smelled, and tasted like a checking account). Thus NOW accounts were not subject to regulations on checking accounts and could pay interest. In May of 1972, after two years of litigation, mutual savings banks in Massachusetts were allowed to issue NOW accounts that paid interest. Subsequently, in September of 1972, the courts approved NOW accounts in New Hampshire.

NOW accounts were immediately successful in New Hampshire and Massachusetts, and they enabled savings and loans and mutual savings banks in those states to attract more funds which could be loaned out. Since commercial banks did not want competition from other financial intermediaries for checking account deposits (at the time only commercial banks were legally allowed to issue checking accounts), they mounted a campaign to prevent the spread of these accounts to other states. The result was congressional legislation enacted in January of 1974 that limited NOW accounts to New England. Legislation in 1980 finally authorized NOW accounts nationwide for savings and loans, mutual savings banks and commercial banks, while similar accounts at credit unions (share draft accounts) were authorized for credit unions.

Another innovation that enabled banks to effectively pay interest on checking accounts is the ATS (automatic-transfer savings) account. Here a checking account automatically has balances above a certain amount transferred into a savings account that pays interest. When a check is written on the ATS account, the necessary funds to cover the check are automatically transferred from the savings account into the checking account. Thus balances

earning interest in a savings account are effectively part of the depositor's checking account because they are available for writing checks. Legally, however, it is the savings account and not the checking account that pays interest to the depositor.

The prohibition, of interest on checking accounts is no longer an issue for the accounts of individuals but is for corporate accounts. Commercial banks provide a variant of the ATS account to their corporate depositors, which involves the use of a "sweep account" to engage in overnight repurchase agreements (RPs). In this type of arrangement any balances above a certain amount in a corporation's checking account at the end of a business day are "swept out of the account" and are invested in overnight RPs that pay the corporation interest. Again, although the checking account does not legally pay interest, in effect the corporation is receiving interest on balances that are available for writing checks.

The financial innovations of ATS accounts and overnight RP arrangements were stimulated not only by deposit rate ceilings, but also by new technology. Without low-cost computers to process inexpensively the additional transactions required by these accounts, neither of these innovations would be profitable and therefore would not have been developed. Technological factors often combine with other incentives, such as the desire to get around restrictions on deposit rates, to produce financial innovations.

The desire to avoid deposit rate ceilings and the "tax" on deposits imposed by reserve requirements also led to the development of money market mutual funds, a new financial institution that sells a new financial instrument. Money market mutual funds issue shares that are redeemable at a fixed price (usually $1) by writing checks and uses these funds to invest in short-term money market securities (Treasury bills, certificates of deposit, commercial paper). Although money market fund shares effectively function as checking account deposits that earn interest, they are not legally deposits and so are not subject

to reserve requirements or prohibitions on interest payments. For this reason they can pay higher interest rates than deposits at banks.

The first money market mutual fund was created by two Wall Street mavericks, Bruce Bent and Henry Brown, in 1971. However, the low market interest rates from 1971 to 1977 (which were just slightly above Regulation Q ceilings of 5 1/4 to 5½%) kept money market mutual funds from initially becoming a success because their interest rates were not particularly advantageous relative to those on bank deposits. In early 1978, the situation changed rapidly as market interest rates began to climb over 10%, well above the 5½% maximum interest rates payable on savings accounts and time deposits under Regulation Q. In 1977, money market mutual funds had assets under $4 billion; in 1978, their assets climbed to close to $10 billion, in 1979, to over $40 billion; and in 1982, to $230 billion. Currently, their assets exceed $300 billion even though bank interest rates are no longer restricted by Regulation Q.

III. The Impact of Financial Innovation on Regulation

Just as financial institutions change in response to regulation, the regulatory authorities change their regulations in response to financial innovation. This process can be thought of as a "cat and mouse" game between the financial institutions and the regulators in which they adapt continually to each other.

Two major objectives of the regulatory authorities have governed their response to financial innovation in the last twenty years: (1) the encouragement of home ownership, as reflected in attempts by the regulatory authorities to ensure flows of funds into mortgage-issuing institutions; and (2) the encouragement of stability in the financial system, as reflected in the

attempts to prevent bank failures.

BANK REGULATION IN THE 1970S

Once market interest rates began to rise above the Regulation Q ceilings on deposit rates in the late 1960s and 1970s, funds began to leave depository institutions, particularly the savings and loans and mutual savings banks. Because savings and loans and mutual savings banks were the most important issuers of residential mortgages, their loss of deposits meant that there were fewer funds available to issue residential mortgages. Therefore, in order to encourage the flow of funds into these mortgage-issuing institutions, Regulation Q ceilings were set to allow savings and loans and mutual savings banks to pay slightly higher interest rates (by one-quarter of one percent) on their time deposits than commercial banks could pay on theirs. In addition, to put everyone on a more equal footing, deposit rate ceilings were extended to previously unregulated institutions such as credit unions.

Regulators also pursued a second strategy to discourage financial market instruments that would compete with deposits. They convinced the U. S. Treasury in 1970 to raise the minimum denomination on Treasury bills to $10,000, so that small savers would be forced to put their savings into savings and loans and mutual savings banks. In addition they encouraged bank holding companies and corporations not to issue small-denomination debt. This strategy discriminated against small savers (typically low-income) who were prevented from earning market interest rates. Large savers (typically high-income), on the other hand, had sufficient resources to buy large-denomination securities and earn market interest rates.

Although deposit rate ceilings worked in the short run to provide funds to the mortgage-issuing institutions, financial innovation worked to undo these regulations. In the late 1970s the success of money market mutual funds and

overnight repurchase agreements was causing mortgage-issuing institutions to lose so many deposits that their financial health was severely threatened.

By 1980, despite regulations to help the savings and loans and mutual savings banks, the continuing rise in interest rates left them in even deeper financial trouble, and commercial banks were threatened as well. A major financial reform was needed and it came in the form of congressional legislation -- the Depository Institutions Deregulation and Monetary Control Act of 1980.

DEREGULATION OF THE FINANCIAL SYSTEM IN THE 1980s

As often happens with major legislation, an attempt is made to please as many opposing parties as possible to enhance the chances of passage. An important intent of the Depository Institutions Deregulation and Monetary Control Act (DIDMCA) of 1980 was to help the mortgage-issuing institutions (savings and loan associations and mutual savings banks). These institutions were allowed to compete more effectively against commercial banks by allowing them wider latitude in the loans they could make. Savings and loans, for example, whose loans had effectively been restricted to mortgages, were now allowed to invest up to 20% of their assets in consumer loans, commercial paper, and corporate bonds. Mutual savings banks were allowed to make commercial loans up to 5% of their assets and were allowed to open checking accounts in connection with these loans. In addition, savings and loans were allowed to expand into new lines of business such as trust services and credit cards.

DIDMCA also approved NOW and ATS accounts nationwide at all depository institutions, thereby allowing all of these institutions to compete more

effectively against money market mutual funds. It also mandated a phaseout of Regulation Q, completed by 1986, and set up a Depository Institutions Deregulation Committee to supervise the phaseout. The provisions of DIDMCA not only had advantages for the mortgage-issuing institutions, but also benefited commercial banks and credit unions, thus garnering their support for this legislation. These provisions were popular with the public since they allowed depositors to earn higher interest payments on their deposits.

Other provisions of DIDMCA involved the elimination of usury ceilings (maximum interest rates) on mortgage loans and the elimination of usury ceilings for three years on certain business and agricultural loans. Finally, DIDMCA imposed uniform reserve requirements on all depository institutions and allowed all of these institutions access to Federal Reserve facilities, such as the discount window and Fed check-clearing. This final set of provisions put all of these institutions on an equal footing and made them more subject to control by the Fed.

The expansion of NOW and ATS account deposits after they were authorized by DIDMCA starting in 1981 was dramatic, with the amount of these deposits increasing from $27 billion to $101 billion from 1980 to 1982. However, since the Regulation Q deposit rate ceilings were being phased out gradually and market interest rates climbed to record levels in 1981-1982, money market funds continued to grow rapidly (averaging $76 billion in 1980 and $230 billion in 1982). As a result, savings and loans and mutual savings banks were losing deposits at the same time that the cost of their acquired funds climbed higher. The result was an unprecedented (for the post-war period) number of failures of these institutions. Thus further reform legislation was needed to help these institutions.

In October of 1982, the Depository Institutions (Garn-St Germain) Act was passed in order to deal with the immediate emergency stemming from the

unprecedented number of failures of savings and loans and mutual savings banks (over 250 in 1982). To compete more effectively with money market funds, depository institutions were allowed to offer money market deposit accounts (MMDAs) which provide services comparable to money market mutual funds and are not subject to Regulation Q ceilings or reserve requirements. Since depository institutions are able to pay high interest rates on these accounts, they have become immensely popular: By the end of 1984, MMDA deposits had grown to over $400 billion and now exceed $500 billion.

The Garn-St Germain Act had additional provisions to help savings and loans and mutual savings banks. By 1984 federally chartered savings and loans and mutual savings banks were allowed to invest up to 10% of their assets in commercial loans, and the maximum amount of consumer lending was raised to 30% of their assets. Because the provisions put these institutions on a more equal footing with commercial banks, the Garn-St Germain Act required that from 1984 on, Regulation Q ceilings should be applied equally to all depository institutions until they expired in 1986.

A final set of provisions was designed to assist the federal deposit insurance agencies in dealing with the emergency situation due to bank failures. For example, they were given emergency powers to merge troubled institutions across state lines or to merge thrift institutions (mutual savings banks and savings and loans) into commercial banks.

Another element in the deregulation of the financial system in the 1980s has been the crumbling of the regulatory barriers separating the banking and the securities industry. Before 1933, investment banking and commercial banking often were conducted by the same institution. The combination of investment and commercial banking led to potential conflicts of interest, especially in the operation of bank trust departments. After the bank failures of 1930-1933 and the public uproar over documented cases of abuses by bank trust departments, political pressure developed to eliminate conflicts of

interest and to promote a banking system less prone to failure. In response to this pressure, Congress enacted the Glass-Steagall Act of 1933 which prohibited commercial banks from engaging in the underwriting and dealing of corporate securities (commercial banks were allowed to sell new issues of government securities) and limited banks to the purchase of debt securities approved by the bank regulatory agencies. Likewise, it prohibited investment banks from engaging in commercial banking activities. In effect the Glass-Steagall Act separated the activities of commercial banks from the securities industry.

Financial innovations such as money market mutual funds and cash management accounts at brokerage firms (which provide a package of financial services that includes credit cards, immediate loans, check-writing privileges, automatic investment of proceeds from the sale of securities into a money market mutual fund, and unified record keeping) have enabled the securities industry to engage in activities traditionally carried out by commercial banks. Even nonfinancial firms such as Sears have encroached on banks' business: they have developed "financial supermarkets" in which the services of several financial institutions can be obtained under one roof.

Partially in response to these developments which have lowered bank profitability, the bank regulatory agencies have been allowing banks to engage in traditional investment banking activities, such as underwriting commercial paper, mortgage-backed securities, municipal revenue bonds and other securities. Banks are also now allowed to sell first-mortgage life insurance and to share certain fields with insurance companies. The separation between banking and securities activities is rapidly becoming a thing of the past.

IV. The Crisis in Banking and the Current Reregulation Trend

The net effect of deregulation in the 1980s along with the rapid pace of financial innovation has been to make the financial system as a whole more competitive: All depository institutions are treated more equally and the distinctions between the different depository institutions and between the banking industry and the securities industry have become blurred. Although this result of deregulation has been beneficial, deregulation has led to some disastrous consequences. Specifically it has led to the banking crisis of recent years, which has been most serious for the savings and loans industry.

Although federal deposit insurance provided by such agencies as the Federal Deposit Insurance Corporation (FDIC) has the important benefit of protecting depositors from losses when banks fail, thereby making it less likely that banking panics, such as those in the 1930s, occur, it suffers from what is known as "moral hazard". Moral hazard occurs when the existence of insurance encourages insured parties to take greater risks because they know that they are protected by their insurance. Because insured depositors know that they will not suffer losses (up to $100,000) if a bank fails, they do not impose the discipline of the marketplace on risk-taking banks by withdrawing deposits when they suspect that the bank is headed for trouble. Consequently, banks with deposit insurance can (and do) take on greater risks than they otherwise would.

With the tide of financial innovation and deregulation of the banking system in the early 1980s, the moral hazard problems of deposit insurance worsened. The proliferation of new financial instruments and markets and the diminished regulatory restrictions on banks has made it far easier for banks to engage in risk-taking activities. Not surprisingly, commercial bank failures increased dramatically. From 1945 to 1980, commercial bank failures averaged less than ten per year. Since 1981, the number of commercial bank

failures has climbed steadily, and have been currently running at the rate of 200 a year.

If the situation has been bad in the commercial banking industry, it has been far worse in the savings and loan industry. Deregulation meant that savings and loans were now allowed to depart from their traditional loan activity in residential mortgages, a fairly staid business, and engage in risky investment activities for which they were often ill equipped. The moral hazard problem thus became even more severe for savings and loans. A bad situation was made even worse by the shortage of funds for the Federal Savings and Loan Insurance Corporation (FSLIC), the deposit insurance agency for the savings and loan industry. Because the FSLIC did not have the funds to liquidate insolvent banks, it was unable to close many of these banks down and continued to let them operate. These insolvent but still operating S&Ls now had even greater moral hazard. Such an institution had nothing to lose by taking on great risk and "betting the bank": if it gets lucky, it gets out of insolvency, and if its not, the deposit insurance agency has to absorb the further losses. The outcome of this process has been huge losses among a large number of savings and loans. At the end of 1988, over a quarter of the savings and loans were either insolvent or on the brink of insolvency.[4]

After passing bank legislation in 1987 that raised only $10.8 billion for the FSLIC, a completely inadequate figure for cleaning up the savings and loan mess, Congress finally passed the Financial Institutions Reform, Recovery and Enforcement Act (FIRREA) of 1989. This act which abolished the FSLIC and placed its activities under the control of the FDIC, will attempt to resolve the savings and loan crisis by committing an estimated $166 billion in the next ten years for a new government agency, the Resolution Trust Corporation, which will close and dispose of the insolvent S&Ls.

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[4]For an excellent discussion of the forces behind the crisis in federal deposit insurance, see Kane (1985).

An important feature of the 1989 legislation is that it has increased the regulation of the savings and loan industry. It substantially raises capital requirements for the savings and loans, restricts their investment activities, and places the responsibility for monitoring the industry with the FDIC, a much tougher regulator than the now defunct FSLIC. Even with the substantial reregulation of the savings and loan industry, many economists feel that the reregulation does not nearly go far enough and that a savings and loan insolvency crisis may pop up again in the future.

The trend to reregulation has also arisen for the commercial banking industry. Capital requirements have also been increased for commercial banks, and new capital requirements for risky bank activities that may not appear on the bank balance sheet have also been proposed. In our current, dynamic world of new financial markets, which has been driven by financial innovation, there are growing opportunities for risk taking. This is likely to mean increased regulation by our regulatory agencies in order to minimize the moral hazard problem of deposit insurance.

The financial instability in the banking system in recent years has also led to worries about the overall health in the financial system. Thus, the trend to more regulation in the banking industry may also be accompanied by additional regulation in other areas of the financial system. Concern about increased stock market volatility has led to calls for restrictions on program trading, and by some, even an outright ban on stock index futures markets. There are also calls for restrictions on the issuance of junk bonds, which are controversial because they have frequently been used to finance corporate takeovers and are a factor in the increasing level of corporate indebtedness which some fear could lead to a financial collapse.[5] Where the 1980s have been an era of financial deregulation, the 1990s look like they may swing in the other direction.

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[5]An excellent discussion of these issues is contained in Bernanke and Campbell (1988).

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