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A Most Unusual Period in
the Financial Services
Industry

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James H. Lorie

The University
of Chicago

Graduate School
of Business

lanes H. Lorie is the Eli B. and Harriet B. Williams Professor of Business Administration at the University of Chicago Graduate School of Business. He has served as director of research, associate dean, and acting dean of the School. From its founding in 1961 until 1974, Professor Lorie was the director of the Center for Research in Security Prices, and for twenty years beginning in 1964 he directed and moderated the semi-annual Seminar on the Analysis of Security Prices.

Professor Lorie received both his A.H. and A.M. degrees from Cornell University. His Ph.D. is from the University of Chicago.

His studies in collaboration with Professor Lawrence Fisher of Rutgers University on rates of return from common stock are recognized as the first comprehensive and refined measurements of the performance of stocks listed on the New York Stock Exchange. As a consultant to the Treasury Department (1973-74) he prepared the report on *Public Policy for American Capital Markets*.

Professor Lorie has written and spoken extensively on marketing, consumer spending, and business finance. In addition to his collaborative work with Professor Fisher, his books include *Modern Developments in Investment Management: A Book of Readings*, with Richard A. Brealey, and *The Stock Market: Theories and Evidence*, with Mary T. Hamilton and Peter Dodd, while his articles have appeared in the *Journal of Business*, the *Journal of Law and Economics*, the *Journal of Portfolio Management*, and the *Wall Street Journal*.

He has been a consultant to the Board of Governors of the Federal Reserve System and a member of the Ford Foundation's Advisory Committee on Endowment Management. He headed the Bank Administration Institute's committee to devise a system for evaluating the investment performance of pension funds.

Presented as a lecture on November 16, 1987, in Swift Hall at the University of Chicago, this Selected Paper is the second in the series of lectures sponsored jointly by Cresap, McCormick and Paget and Towers, Perrin, Forster & Crosby. In Professor Lorie's words, "This lecture symbolizes and celebrates a long-standing relationship between Cresap, McCormick and Paget and Towers, Perrin, Forster and Crosby on the one hand, and the Graduate School of Business of the University of Chicago on the other. It is an honor and a pleasure to have the opportunity to give this lecture, and I hope my colleagues have an annual opportunity of this sort for many years to come. I thank the sponsors of this event for their creative generosity."

A Most Unusual Period in the Financial Services Industry

This talk will be a *tour de force*. In an analysis of the real world of finance during the last twenty years, I will not discuss October 19, junk bonds, Ivan Boesky, T. Boone Pickens, or the Mary Cunningham story, entertaining though those subjects may be. Instead, I will talk about the surge of change and innovation in the financial services industry during the last twenty years, a most unusual period, and will comment on the next twenty years. In the last twenty years, remarkable changes have occurred in almost every dimension of financial services. There has been no other period of similarly dramatic change in our history. The preceding twenty years, 1947-1967, were relatively halcyon; the technology of trading, the products, the structure of firms in the industry, and the rules of the game remained virtually the same. And, before 1947, there had been remarkable stability in the industry. True, the Great Crash and the Great Depression produced the Glass-Steagall Act, the Securities Act, the Securities Exchange Act, the Maloney Act, and the Investment Company Act. This flurry of legislation made a difference, but the changes were not nearly as fundamental and various as the changes in the last twenty years.

What caused the shift from relative tranquility to rapid change? Despite the wonders that graduate education in business has performed for increasing numbers of students, it is doubtful that the recent surge of creativity is attributable to more talent or knowledge than was previously available. It is more plausible to look to the economic environment of American financial markets, And that is where we will look in a few minutes.

The Changes

Time prevents listing all of the important changes of the last twenty years, but I will indicate some of them. Perhaps the most important product innovation was the creation of futures contracts on stock indexes, debt instruments, and foreign exchange. Of comparable importance was the creation of markets for trading listed options on stocks, bonds, indexes of stocks and bonds, and futures contracts on stocks and bonds. These two innovations made possible a more complete and precise management of the risks of investing as well as providing opportunities to reduce transaction costs and taxes.

Not only do we have new instruments, such as financial futures and listed options, we have old instruments in new forms. Prior to 1967, most corporate bonds were simple-long-term bonds with fixed rates. Since 1967, bonds have been issued with puts and calls and variable rates. We have zero coupon bonds and stripped bonds. There are bonds collateralized by mortgages and car loans, and there are plans for bonds collateralized by bank loans. We also have adjustable rate preferred stocks and other wonderful securities too numerous to mention. There are index funds of many sorts, money market mutual funds, portfolio insurance on portfolios of all types, and interest-rate swaps of

various kinds. And we have seen the growth of portfolio immunization.

The technology of trading has changed. Most striking is the change in the over-the-counter market. The old pink sheets are gone. In their place is NASDAQ, an automated quotation system recently enhanced to make possible automated execution of orders of not more than 1,000 shares. This change has helped to make the NASDAQ National Market System the most rapidly growing stock market in the world. It is now the third largest market, ranking behind New York and Tokyo, and is technologically well positioned to continue to gain ground as worldwide trading expands. The recent announcement of the Stock Exchange of London that it will abandon its trading floor in 1988 and rely solely on a NASDAQ-type system is evidence of the power of the new technology. Also impressive has been the creation of information retrieval systems that enable investors almost anywhere to know instantaneously the most recent transaction prices of thousands of stocks and bonds.

The structure of firms in the financial services industry has changed in important ways. Twenty years ago, it was appropriate to call firms such as Merrill Lynch and Paine Webber brokerage firms since a major portion of their revenues came from brokerage fees on listed securities. Today these firms do more brokerage than ever. But brokerage fees account for only a minor fraction of total revenues as a result of the vast expansion of investment banking, merchant banking, securities trading, asset management fees, fees from bank-like services, fees from mergers and acquisitions, and diversification into insurance and real estate. Banks, too, have changed. Many banks now offer brokerage services for securities, and leading money center banks now have large investment

banking divisions offering a full range of corporate financial services as well as underwriting and trading facilities for all types of securities-except corporate stocks and bonds in this country-and for all types of securities abroad. Securities firms have become more bank-like, and commercial banks have become more like securities firms. Even insurance companies now call themselves financial services firms, offer real estate services, have asset management departments, and have acquired diversified securities firms.

The rules of the game in financial services have changed. In 1975, the most durable and successful price-fixing cartel in American history came to an end as the New York Stock Exchange gave up fixed minimum brokerage commissions. After 183 years, commissions became subject to competitive market forces. Partially as a result, and contrary to dire predictions of the New York Stock Exchange, investors save more than a billion dollars a year in commissions, the prices of seats on the exchange have risen to all-time highs, and trading volume and profits in the industry have increased dramatically. In investment banking, the most important change has been the SEC's 1982 promulgation of Rule 415, which permits securities newly issued by established firms to come to market more rapidly and with less difficulty. The Glass-Steagall Act has been eroded by interpretations from the Federal Reserve Board and by the courts and the ingenuity of the banks. There is serious talk in the Congress of a total repeal, thus enabling banks to underwrite and trade corporate securities in this country just as they already do abroad.

The Causes of Change

Enough has been said to indicate that the pace of change has been hectic. What have been the causes of these changes? Professor Merton Miller, addressing this same question in a talk at the University of Leuven in 1986, identified changes in taxes and government regulations as the major cause of the recent surge in innovation.* It is always daunting to disagree with Professor Miller, but I am going to risk it. I believe that the major causes have not been government actions. Causation of social phenomena is usually complex and difficult, or impossible, to identify with precision or certainty. But a good case can be made that an important-perhaps the most important-cause of change has been high and fluctuating rates of inflation and that other important stimuli have been the institutionalization of the trading of securities in this country and changes in technology. Undoubtedly, changes in taxes and government regulation have played a role and in some cases have been proximate causes, but one can't help wonder why the impact of the government should have been so profoundly different in the last twenty years than in preceding periods.

Almost certainly, inflation has been a major cause of many changes, including, but not limited to, futures contracts on financial instruments, the creation of new varieties of bonds, money market mutual funds and the growth of the Eurodollar market, interest rate swaps, the movement of securities firms into bank-like services, and the growth of the practice of immunizing bond portfolios.

*Published as Selected Paper No. 63.

First let us consider what Professor Miller and I both regard as the most significant innovation—the development of futures markets for financial instruments. The International Monetary Market was created in 1972 to permit the general public, in contrast to the major international banks, to speculate and hedge in the foreign exchange market. Even though fixed exchange rates were not abandoned until 1973, the volatility of foreign exchange markets increased greatly after August 15, 1971, when the Nixon administration closed the gold window. In the absence of futures markets in foreign currencies, it was difficult and inefficient for the general public to speculate or hedge in foreign exchange markets, especially on the short side. The decision of the Nixon administration to suspend the convertibility of the dollar into gold was a response to the general price inflation in this country which began to be a serious problem in the late 1960s. Although the proximate cause of the rise in the volatility of foreign exchange rates was a government decision, a more fundamental cause was inflation. The chain of causation was from inflation to closing the gold window to fluctuating exchange rates to the need for futures markets.

The inflationary forces that created the need for futures contracts on foreign currencies created a need for futures contracts to permit hedging for all sorts of fixed dollar assets. Soon afterward, futures markets were created for treasury bills, treasury bonds, certificates of deposit, and Eurodollar deposits. Inflation increased the need for financial instruments permitting hedging in these assets, and markets responded—as they always do—to changing circumstances.

Inflation interacted with an ancient regulation of the Federal Reserve Board to cause the

growth of the Eurodollar market and the creation and rapid growth of money market mutual funds. Regulation Q placed a ceiling on the interest that commercial banks could pay on domestic time deposits. When inflation caused market rates to rise above these ceilings, deposits quite naturally moved abroad to European banks or foreign branches of American banks and into newly created money market mutual funds. The principal cause of the rapid development of the Eurodollar market and the creation and growth of money market mutual funds was inflation, not an old, unchanging regulation.

The proliferation of new types of bonds was caused by fluctuating rates of substantial inflation with their accompanying fluctuating and generally rising nominal interest rates. Call provisions became virtually universal in corporate bonds to protect issuers from a decline in rates, and puts became common to protect investors from a rise. Variable rate bonds were another form of protection from fluctuating rates.

Interest rate swaps were invented in the early 1980s. They permit two issuers of debt to benefit from the existence of a differential advantage by one issuer in the fixed and variable rate markets. Volatile interest rates, largely induced by volatile rates of inflation, created variable rate debt and thus made interest rate swaps possible and desirable.

Immunization is a technique for making a portfolio of bonds insensitive to fluctuations in interest rates for the purpose of meeting clearly defined objectives. The idea of immunization predated the recent inflation, but immunization was not extensively used until inflation caused interest rates to rise and become volatile. Now immunization is widely used in the management of pension funds and insurance portfolios.

came to dominate trading and average order size increased greatly, the difference between marginal costs of execution and brokerage fees became large absolutely and made it sensible for institutions to seek alternatives to trading on the New York Stock Exchange. The over-the-counter market for listed stocks--the so-called third market--grew rapidly as did trading on regional exchanges where financial institutions could be members and thus qualify for reduced brokerage rates. The market share of the New York Stock Exchange in the trading of their listed stocks fell from the traditional level of 85 to 90 percent to an average share of about 80 percent and to a much lower share for the stocks of large companies that were institutional favorites.

The New York Stock Exchange tolerated the bundling of services with order execution so that the "free" services eroded profit margins, leaving member firms with no more profit than would have existed with competitive rates. Some firms realized this and advocated abandoning the old fixed-rate system.

By May 1, 1975, when the SEC finally ordered an end to fixed minimum commissions, the system was already crumbling and would, in my opinion, have been abandoned without government action.

The influence of changing technology has been pervasive by greatly reducing the costs of analyzing and transmitting information. It may be startling, especially for the current generation of graduate students, to realize that modern computers have been commercially available for only about thirty years. When the Antitrust Division of the Department of Justice filed its antitrust suit against IBM in the mid 1950s, the complaint was that IBM was monopolizing the tabulating machine industry. Without the rapid

development of computers and advanced telecommunication systems that has taken place since that time, financial markets would be very different today. The kinds of computers available twenty years ago would not support a system for trading the volume of securities that is now commonplace. In the late sixties and early seventies, a number of major firms failed because they could not handle the volume of business being transacted when the average volume on the New York Stock Exchange was less than 15 million shares a day. Twenty years ago the average daily volume on the New York Stock Exchange was 10 million shares, and the highest volume on any day was less than 15 million shares. In the last twenty years, the average annual rate of growth in daily trading volume has been about 20 percent, compounded annually. In 1980, the then-chairman of Merrill Lynch said that his firm could handle sustained trading of 100 million shares a day. Today the average volume is over 180 million shares, and from October 19 to November 2 volume averaged over 300 million shares with two consecutive days of more than 600 million shares. This fantastic change in volume over the last twenty years was fueled by institutionalization and lowered transaction costs and made possible by developments in computers and telecommunications.

The NASDAQ automated quotation and execution systems would have been impossible thirty years ago. INTEX, the Bermuda-based electronic futures market, provides a worldwide automatic execution facility and depends on recent developments in telecommunication technology. INSTINET and POSIT are recently developed electronic systems designed to permit the automatic crossing of institutional orders. Only a few weeks ago, the Chicago Mercantile Exchange (CME), that most innova-

tive organization, announced a proposed agreement with Reuters to create a global electronic market in futures during those hours of the day when the exchange's pits are closed. One commentator has said that this development, should it come to fruition, would put the CME in a position to be the predominant exchange in the world. Whether that is true or not, modern technology has already made and will continue to make dramatic changes in the global trading of securities.

Inflation, the institutionalization of trading, and changing technology have been important causes of many changes of the last twenty years. But, of course, many other forces have been at work. An example is the listed options market, which began in 1973 and rapidly became large and important. The principal stimulus for creating the Chicago Board Options Exchange, the first listed options exchange, was the quest by members of its parent, the Chicago Board of Trade, for some volatile markets where traders would have a chance to make or lose some money and investors had new instruments for managing risk. Futures prices for grains, the traditional province of the Board of Trade, had become relatively stable in response to increases in the supply of grains in the presence of government price supports. The grain pits had become quiet as prices pressed the support levels, and Board of Trade members needed some action. The existing over-the-counter market in stock options was small and impressively inefficient. The Board of Trade seized the opportunity to offer a superior alternative with brilliant success.

There isn't time to discuss other changes and their causes in greater breadth or depth, but one conclusion seems warranted. When the economic and technological environment

Investor put it, Glass-Steagall has already become almost irrelevant. The ingenious forces of the market have done their work and largely undone some federal legislation.

A second prediction concerning banks is that within a few years we will have nationwide banking by single banking corporations as more and more states permit interstate banking. Responding to an increase in the frequency of failures of banks and thrift institutions, to new information technology, and to other causes of increased economies of scale, ten states already permit full interstate banking, thirteen more are in the process of permitting it, and eight permit banks in other states to acquire failing or failed banks. These developments have the approval of Mr. Greenspan, which is helpful though not decisive in creating a true national banking system.

A third easy prediction is that there will be an acceleration in the globalization of securities markets. By this I mean that cross-border trading and investing will expand rapidly through the creation or further development of

- facilities permitting investors in the developed countries to secure quickly and cheaply information about foreign securities and securities transactions,
- facilities for the efficient clearing and settling of cross-border transactions, and
- facilities for the automatic execution of securities transactions twenty-four hours a day any place in the world where there are organized securities markets.

An important ingredient in this process is a change in investors' attitudes, especially American investors. For almost all of our history,

Americans have been provincial in their investing habits, sticking almost exclusively to American securities. Generally, the dollar was strong and "as good as gold"; American capital markets were large, liquid, and highly diversified, especially in comparison to foreign markets; and facilities for foreign trading and investing were rudimentary. In recent years, much of this has changed. The tie between the dollar and gold has been severed; foreign markets have developed, especially in Japan and other countries of the Pacific rim; and physical facilities and institutional arrangements for disseminating information about securities and transactions and for settling and clearing cross-border transactions have been developing rapidly.

Recently, the Securities Industry Association gathered foreign experts for its first conference on international capital markets. Technology exists to do everything that needs to be done. The most immediate problem is settling and clearing international transactions. Roger Birk, chairman of the International Securities Clearing Corporation, believes that a satisfactory system will be developed in five to ten years, probably spurred by a crisis in the meantime. Leading financial firms are already increasing their foreign staffs and businesses. The deregulation of the London Stock Exchange and its opening to foreign firms in **1986** have already resulted in a doubling of the volume of business and in non-British ownership of more than half of the leading brokers. Japan has opened the Tokyo Stock Exchange to foreign firms, which have moved in and are expanding. The Japanese are in London and New York, both directly through foreign branches of their own firms and indirectly through partial ownership of such firms as Goldman Sachs and Shearson Lehman. The

two leading German banks are in London and New York. The French and the Swiss also have been expanding their foreign activities.

In a recent article in the *Wall Street Journal*, William Freund, former chief economist of the New York Stock Exchange, told of the constructive turmoil in European stock exchanges. Reference has already been made to the opening of the London Exchange to foreign firms and its adoption of an electronic trading system. Linked together electronically, eight German exchanges are for the first time providing real-time information of transactions to the public. The Paris Bourse has replaced its trading system, virtually unchanged for over 150 years, with an electronic system of the sort developed by the Toronto Stock Exchange. The Swiss exchanges have been working with the National Association of Securities Dealers to develop a NASDAQ-like system. One important consequence of the adoption of modern electronic trading and reporting systems is that so doing will facilitate the creation of a global electronic system. In sum, all of the ingredients are in place for an acceleration in the expansion of cross-border trading and investing.

The interaction of the three changes which I have predicted—the repeal or further erosion of Glass-Steagall, the creation of a true national banking system, and an acceleration in the growth of cross-border trading and investing—will lead to the sharply increased relative importance of very large diversified financial services firms. I am not predicting the demise of small banks or of regional broker-dealers, and I am certainly not predicting any diminution of competition. But there will be consolidation within the American banking system and within the securities industry and an increase in the scale and relative importance of the largest banking and securities firms. Competition will

have more of an international flavor. as already is most evident in London since the "big hang." and the artificial barriers between types of financial institutions will erode with a consequent intensification of competition.

In the next twenty years, as in the last, significant changes will occur in the real world of finance. There will be new products such as floating rate treasury bonds and index funds on a world index. and there will be further changes in technology. The basic causes of change will continue to be the market rather than the government.