
Chapter 3

The Securities Industry

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The Securities Industry

The securities industry in the United States, which developed to help young American business gain financing from European investors, continues to bring together those who need capital and those wishing to invest. The industry directs its concentrated expertise on financial markets toward its intermediary role of facilitating the development of capital. It provides advice, accepts risk, and offers marketing services to ensure that an orderly market for the issuing and trading of securities* is maintained.

*For purposes of this study, securities include debt and equity issues used to develop capital (stocks and bonds, money-market securities, and instruments which have been developed to allow hedging and speculation in securities and commodity markets—i. e., options and futures contracts). These instruments, as well as investment tools which developed from the packaging of securities instruments, such as mutual funds and central asset accounts, are described in app. 3A.

Since the introduction of the telegraph 140 years ago, communications technologies have been used by the industry to convey information on which the operations of securities industry depend. However, while the securities industry has always applied state-of-the-art technology to its operations, the level of technology used today and likely to be available tomorrow is beyond what could have been dreamed of when the telegraph was applied in 1844.

In this chapter, the structure, functions, and instruments of the securities industry are described. The impact that the application of computer and communications technologies has had in these areas is reviewed and possible future effects are discussed.

Structure of the Securities Industry

The structure of the securities industry has been shaped by the demands of users, national policy objectives regarding the financial service industry, practical operational concerns, and competitive market forces. In this section, a brief overview of the development of the current structure of the securities industry and a description of the organizations and competitive forces comprising the industry will be provided. Present and future effects of information technology on the structure of the industry will be discussed.

The Development of the Securities Industry in the United States

The securities industry in the United States developed to meet the capital demands of the new Nation. One side effect of the independence won in the Revolutionary War was war debt. This was funded by the issuance of interest-paying bonds, for which a secondary

market shortly developed.¹ At the same time the need to finance development in the new Nation was recognized. The burgeoning securities industry provided a vital link to European capital markets and also a means of transferring capital within the United States. The basic role filled by the securities industry in the late 1700's is still a driving force behind its operations today: to provide a means of interaction for those seeking capital and those wishing to invest.

Two factors which quickly emerged as essential to the operation of the securities industry were the maintenance of an orderly market and the availability of trading information. Twenty-four brokers, conducting trading under a buttonwood tree, subscribed to a brokers' agreement that formed the first stock market

¹Marketplace—A Brief History of the New York Stock Exchange (New York: New York Stock Exchange, Inc., 1982).

in New York on May 17, 1792.² This market became the New York Stock Exchange. In what is now known as the "Buttonwood Agreement," the brokers focused on working together to assure they would be able to trade securities smoothly and fairly.

Information on trading and prices has always been essential to trading decisions. Securities firms and exchanges clustered (as on Wall Street) to facilitate the communications needed for the operation of the market. A newspaper first published stock prices in 1815. Prior to the introduction of the industry's first technology-based information system, the electric stock ticker (in 1867), messengers literally ran from the trading floor to brokers' offices with information.

Early refinement and expansion of securities trading can be related to three communications technologies: the telegraph, the transatlantic cable, and the telephone.³ These technologies improved information flows on which the markets are dependent. The telegraph linked exchanges, brokers, and investors throughout the country and made decision-making on investments by someone not on Wall Street practical for the first time. This technology offered the first hope of a national, noncentralized market. The transatlantic cable, completed in 1866, made an international market feasible at a time when American industry was still very much dependent on financing from European investors. Telephones were first used to convey orders from brokers to the floor of the New York Stock Exchange in 1878, 2 years after the first successful test of that technology.

The adoption of these communications technologies and the stock ticker were based on the recognition that the faster and more accurately information flows, the better securities markets function. The introduction of new technologies today is largely based on this assumption.

²New York Stock Exchange 1983 Fact Book (New York: New York Stock Exchange, June 1983), p. 66.

³Marketplace-A Brief History of the New York Stock Exchange, op. cit.

Organizations Composing the Securities Industry

Three types of organizations traditionally compose the securities industry: investment banks perform the services surrounding a public offering of the stocks and bonds of a corporation; brokers manage the buying and selling of securities; and exchanges provide a vehicle for setting prices and actually conducting transactions.

Investment Banks

The activities of investment banks are centered on the development of capital. The Banking Act of 1933, commonly called "Glass-Steagall," required that investment banking be separated from commercial banking because of the sometimes incongruent objectives and the different levels of risk associated with these kinds of organizations. Investment banks fall into two categories: originating firms and distribution firms. Originating firms developed largely as intermediaries between European financiers and young American industry, and they remain major players in the development of securities offerings. Distribution firms come together in syndication, under the guidance of an originating firm, to guarantee and sell the securities of an issuer.⁴

The four leading investment banks in both domestic and foreign financing are Salomon Brothers, Inc.; Morgan Stanley Inc.; First Boston Inc.; and Goldman Sachs & Co. Merrill Lynch, Pierce, Fenner, & Smith Inc. (Merrill Lynch) and Paine, Webber, Jackson, & Curtis (Paine Webber) have a significant share of the domestic market. Three levels of purchasers and sellers are reached through investment bank activities: first, the issuers of securities, those corporations and governments that purchase investment bank services; second, the investors in new issues; and third, the intermediaries who bring these two parties together—other investment bankers, distri-

⁴Samuel L. Hayes III, "The Transformation of Investment Banking," *Harvard Business Review*, January-February 1979, pp. 153-170.

buting underwriters, and commercial banks. Investment banks assume the risk of a public offering of investments by guaranteeing their purchase—i.e., underwriting them.

The nature of competition within investment banking is changing. Price competition is cutting fees for underwriting to new lows. In addition, simplification of securities registration requirements could make underwriters unnecessary. Nevertheless, the need to transfer risk continues to provide a strong incentive for utilizing the services of investment banks.

Brokerage Houses

Full-service brokerage houses perform trades in securities and commodities and provide financial counseling services supported by in-depth research and analysis of markets and industries. This segment of the industry is dominated by firms which are subsidiaries of companies that offer a range of financial management services. Six national brokerage houses lead the industry. They are: Merrill Lynch; E. F. Hutton & Co.; Shearson/American Express; Prudential Bache; Dean Witter Reynolds; and Paine Webber. There are also many regional firms, such as Alex Brown & Sons, which play major roles in trading either nationwide or regionally.

This portion of the industry has been affected by the abolition of fixed commission rates in 1975. While brokerage houses in the past competed on the reputation of their research and the quality of their service, price competition has also become a factor. Discounters, who concentrate on the transaction side of the business, have entered the market and have attracted a significant portion of both institutional and individual trading. In response to this market entrance, many full-service brokerage houses are taking steps to distinguish their services and to increase client loyalty. Increased efforts are being directed toward product development and promotion.

Exchanges

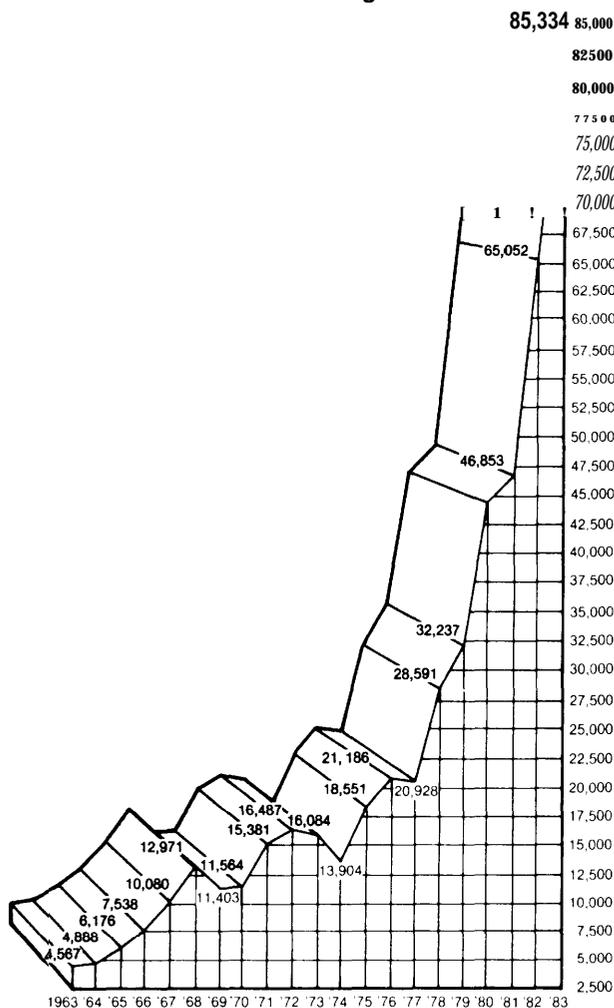
The fundamental role of all exchanges in the securities industry is to provide an orderly marketplace for trading. Exchanges provide a central location and a structure in which buyers and sellers can conduct trades. Exchanges are operated on a membership basis. "Seats," memberships that carry the right to trade on an exchange, are purchased by firms or individuals desiring access to its market. Members agree to direct all trades on listed securities through the exchange floor. This allows the exchanges to manage the markets better—for example, to halt trading on a security, if necessary, with the assurance that member firms will not trade off-market. Stocks and bonds, options, and futures contracts are usually traded on separate exchanges. This specialization is a carry-over from the separate formation of capital and commodity markets.

Stock Exchanges.—Stock exchanges are independent players in the securities industry and have two functions: performing transactions and accepting risk. Stock exchanges act as a secondary securities market for both debt and equity issues, providing flexibility and choice for investors. Potential investors in new issues can evaluate the desirability of the instrument in light of their ability to sell it, and therefore may recognize a lower opportunity cost. The existence of secondary markets also increases the available investment choices since securities other than new issues are made available.

There are seven major stock exchanges: New York, American, Boston, Cincinnati, Midwest, Pacific, and Philadelphia. In 1982, 80.8 percent of the total share volume of registered exchanges was traded on the New York Stock Exchange (NYSE). The National Association of Securities Dealers, Inc. (NASD) operates a quotation system and clearing facility for the over-the-counter market. The automated quotation system, NASDAQ,⁵ has been responsi-

⁵National Association of Securities Dealers Automatic Quotation System.

Figure 3.—Average Daily Share Volume
New York Stock Exchange 1963 to 1983



SOURCE: Futures Industry Association, Inc.

ble for a dramatic increase in trading volume in over-the-counter stocks, an indication of the importance of information flows to trading.

Options Exchanges.—The goal of options exchanges is to provide a continuously competitive and orderly market environment for the purchase and sale of options.⁶ Each exchange determines standards regarding which options may be traded on that exchange. They select the underlying securities on which options may be traded based on factors such as

⁶American Stock Exchange, Inc., et al., *Understanding the Risks and Uses of Listed Options*, 1982.



Photo credit. New York Stock Exchange

The trading floor of the New York Stock Exchange: 1984

the number of shares held by the public and trading volume.

The principal established marketplaces for the trading of options are: the American Stock Exchange; the Chicago Board Options Exchange; the Pacific Stock Exchange; and the Philadelphia Stock Exchange. These exchanges compose the *Options Price Reporting Authority* (OPRA). Trading information from all of the options exchanges is coordinated in OPRA's automated last-sale reporting system. This system, developed and operated by the Securities Industry Automation Corp., provides a consolidated tape of last sale and quote information. The exchanges also formed the *Options Clearing Corp. (OCC)*, which ac-

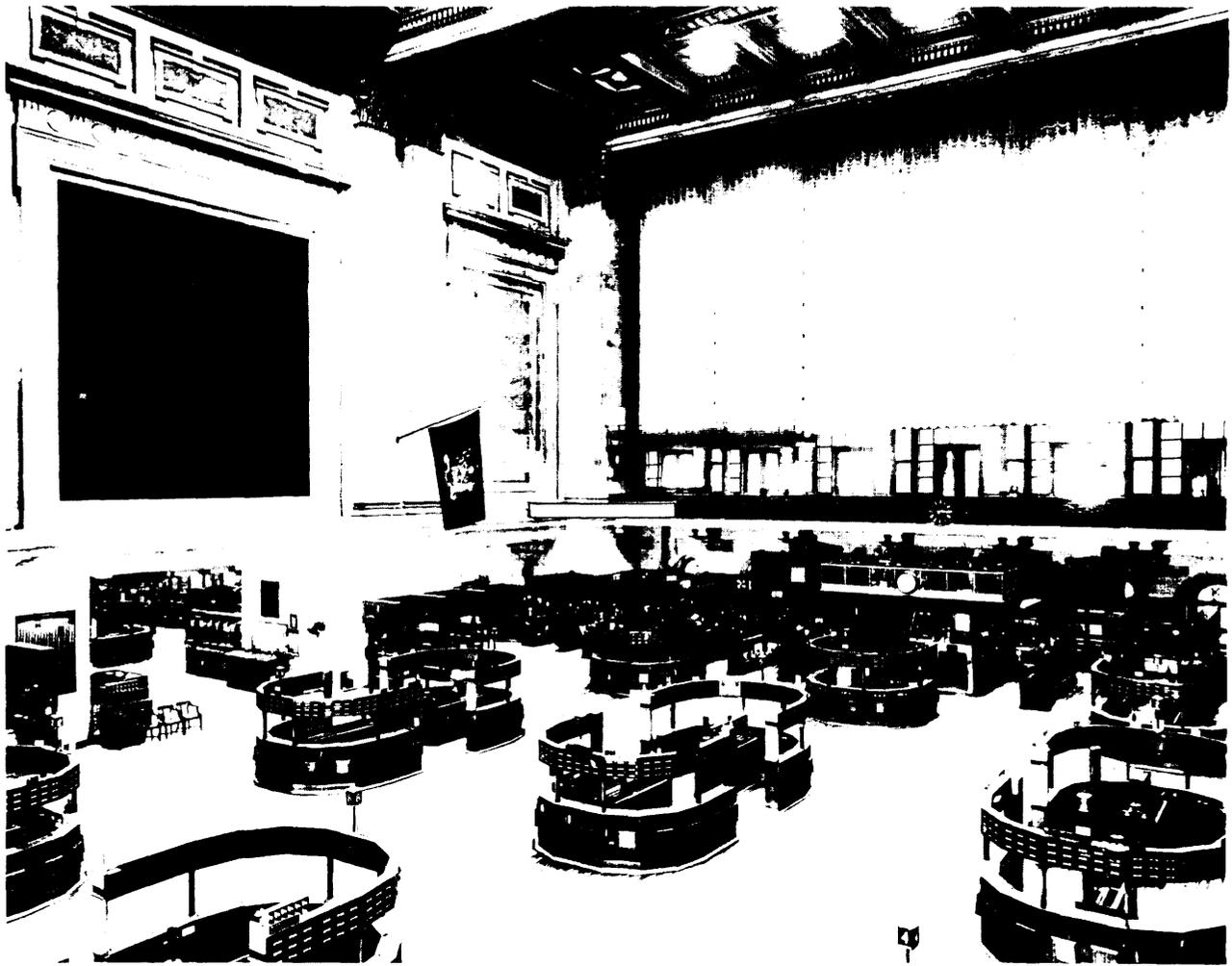


Photo credit New York Stock Exchange

The trading floor of the New York Stock Exchange: 1930

tually issues the exchange-traded options and assigns exercises.

Options exchanges aid in industry self-regulation by developing and enforcing rules concerning the handling of accounts by brokers, trading hours, and position and exercise limits. Options exchanges and the OCC are regulated by the Securities and Exchange Commission (SEC).

Futures Exchanges.—The principal responsibility of a commodity futures exchange is to ensure the existence of competitive markets free of price manipulation for the trading of

futures contracts.⁷ Futures trading is conducted in price auctions on the trading floor. The exchanges are operated on a membership basis, and exchange regulations and policies are set by their boards of directors and subject to approval of the Commodity Futures Trading Commission (CFTC). There are many futures exchanges in the United States. The largest is the Chicago Board of Trade, which in 1983 handled 44.89 percent of total trading volume (see table 2.)

⁷Futures Industry Associates, Inc., "Roles Played by Each Participant," *Futures Trading Course and Handbook*, Washington, D. C., 1983, p. 11-4.



B

Table 2 Consolidated Futures Exchanges: A Comparison of 1983 and 1982

Exchange	1983		1982		Rank
	Contracts	Percent	Contracts	Percent	
1. Chicago Board of Trade	62,811,523	44.89	48,206,790	42.89	(1)
2. Chicago Mercantile Exchange	37,830,044	27.04	33,574,286	29.87	(2)
3. Commodity Exchange, Inc.	20,014,597	14.30	17,520,712	15.59	(3)
4. Coffee, Sugar & Cocoa Exchange	4,876,069	3.48	3,252,512	2.89	(4)
5. New York Mercantile Exchange	3,926,589	2.81	2,649,941	2.36	(5)
6. New York Futures Exchange	3,510,285	2.51	1,451,442	1.29	(9)
7. MidAmerica Commodity Exchange	3,166,537	2.26	2,397,721	2.13	(6)
8. New York Cotton Exchange	1,703,105	1.22	1,479,781	1.32	(8)
9. Kansas City Board of Trade	1,693,042	1.21	1,493,558	1.33	(7)
10. Minneapolis Grain Exchange	379,607	0.27	346,264	0.31	(10)
11. New Orleans Commodity Exchange	13,542	0.01	27,872	0.02	(11)
	139,924,940	100.00	112,400,879	100.00	

SOURCE: Futures Industry Association.

The exchanges play a major role in self-regulation of the futures industry. In this role they are required to perform four activities: surveillance of market activity to detect and prevent situations conducive to price distortion; surveillance of trading practices to detect and prevent trading abuses; investigation of rule violations and customer complaints; and examination of members' books and records.⁸ The introduction of new investment products, such as stock futures, indicates that activity on futures exchanges may be expected to grow over the next several years. The regulatory and operational role of the exchanges will become more complex. Information technology is being applied to facilitate the operations of the exchanges and will play an increasingly important role in their activities.

Industry Users

The demands and characteristics of users of the industry are major determinants of industry structure. The organizations of the securities industry serve as intermediaries between two sets of users: capital seekers and investors.

Organizations Seeking Capital

While the focus of much of the activity of securities industry is on secondary markets, the underlying demand for capital is the reason the industry exists. In 1982, the value of new issues of common stock publicly offered was \$23.4 billion; new, publicly offered debt obligations totaled \$45.2 billion. Private placements of debt and equity totaled \$22.3 billion. As the U.S. economy completes its evolution to an information economy, it may be expected that a great number of both new firms and existing corporations with growing operations will be seeking capital through both private and public sources.

Corporations will demand more rapid access to their capital than ever before because of the effect of information technology on the over-

all economy. Business decisions are being made more quickly, and delays in financing will not be tolerated.

Institutional Investors

Institutional investors include special-interest funds and companies such as pension funds, mutual funds, insurance companies, and private foundations that have a goal of producing income for a specific organizational use and deal in large blocks of securities. They demand prompt, efficient transactions and extensive information.

Since the passage of the Employee Retirement Income Security Act (ERISA), the impact of these investors on the total market has increased substantially. Trades in 10,000 - share blocks, a measure of institutional involvement, have increased to over 44 percent of total share volume.⁹ The broker must also be willing to assume risk by buying from the institutional investor because he demands a high level of liquidity. At the same time, the importance of this segment of the market has led to price competition following the deregulation of commission rates in 1975.

The demands of institutional investors have been, in large part, responsible for much of the automation of trading and clearing by the securities industry. Exchanges need to attract institutional capital to maintain the marketplace, yet information technology, combined with institutional traders' level of market expertise, makes off-market trading a viable alternative for these traders. The volume of trading conducted by institutional investors makes those investors valuable clients for both brokers and exchanges.

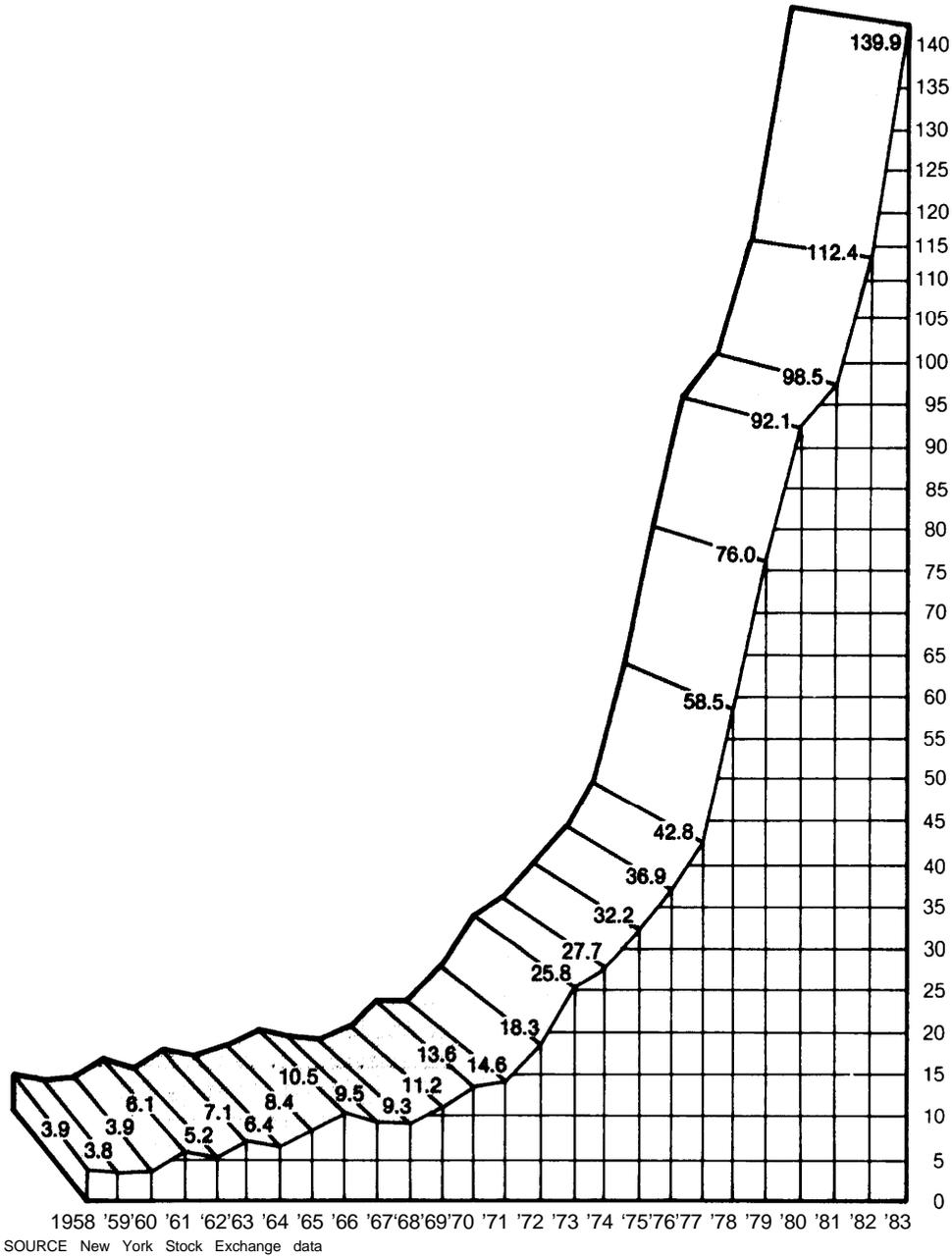
Pension funds are the most significant institutional investors in capital markets. In 1980, these funds held 13.4 percent of the total market value of NYSE listed stocks.¹⁰ Two factors that have contributed to the growing importance of pension funds, both as savings vehicles and institutional investors, are the aging

⁸U. S. General Accounting Office, *Survey of Investor Protection and the Regulation of Financial Intermediaries, 1983*, pp. 28-29.

⁹Securities Industry Association data.

¹⁰*New York Stock Exchange 1983 Fact Book*, op. cit., P. 52.

Figure 4.—Volume of Futures Trading, 1958-83 (millions of contracts traded)



of the population and ERISA. Since there has been great interest in individual retirement planning, pension funds may be expected to be a major player in securities markets.

A mutual fund is a company whose principal line of commerce is investment in securities

for the benefit of shareholders. Shares are sold to investors for the net asset value plus any applicable sales charges. The return for the investor in a mutual fund is similar to that for any corporate shareholder: the investor profits from the assumed expertise of the company management in investment decisions. Mutual

funds are significant as institutional investors because they usually trade in large volumes.

Funds are classified by investment strategy and fall into three categories: income funds, which strive to provide a current income for investors; growth funds, which focus on long-term appreciation; and income and growth funds, which try to be all things to all people. Generally, funds that seek a higher return for investors are more risky. For example, some funds, such as the Phoenix Fund of Merrill Lynch, are composed of securities of failing companies that are believed to have the potential to rebound. While the risk level is higher than average, shareholders in this type of fund have less exposure to risk than if they were to invest in individual securities, and they benefit from high yield.

Mutual funds frequently specialize in specific types of securities, such as government bonds, or in securities from a particular type of industry. *Money market mutual funds* invest only in money market securities, which are by definition short term. For this reason, money market mutual funds are considered less risky and are more liquid than the traditional mutual funds. Money market funds have three basic objectives: to preserve shareholder capital; to maintain liquidity; and, in light of these two objectives, to achieve the highest possible current income.¹² Money market instruments are generally written in high denominations and are only accessible to many investors because they are able to pool their investment dollars in the funds. The money market benefits from the funds because a large quantity of capital not otherwise available is attracted.

Individual Investors

The typical individual investor in securities is an affluent consumer who demands information and advice geared toward his requirements. The sales of mutual funds, a proxy indicator of the level of individual involvement in the securities market, are rebounding after a period of decline. This upswing, plus recog-

nized opportunity to market new investment products, has generated renewed interest in individual investors by the securities industry.

There has been tremendous growth in the number of stockholders. NYSE reports that 42.36 million Americans own shares of U.S. corporations or stock mutual funds, an increase of 10.1 million since 1981.¹³ Of particular significance to the securities industry is the tremendous growth in the number of first-time investors, 7.3 million since 1981. This growth may be attributable to several factors, including the strength of the stock market during the early 1980's, corporate employee stock purchase plans, and most notably, changing demographics.

The "aging" baby-boom generation, now approaching peak investment years, may cause an increase in the number of people investing. People are waiting longer to get married for the first time and have families and therefore are likely to be able to invest at a younger age. While securities firms once targeted their services towards a small portion of the population, their market has become more diverse in terms of both age and income.

Securities firms have been expanding their product lines and the scope of financial services they provide to meet the demands of the individual investor. Movement by firms into other areas, such as insurance and real estate, is an attempt to draw clients at an earlier stage in their financial lifecycle and to fill all of their financial needs.

The Regulatory Structure of the Securities Industry

Federal regulations enacted in the 1930's disallowed involvement by depository institutions in securities activities because of concerns about the effects of risk associated with these transactions on the stability and soundness of banks. Such restrictions separated capital creation from the banking activities of corporations, such as the extension of operating

¹²U.S. General Accounting Office, op. cit., p. 60.

¹³Jon Friedman and Tom Petrino, "Record 42M of Us Are Wall Street Investors," *USA Today*, Dec. 1, 1983, sec. A, p. 1.

credit and transaction accounts. These restrictions were intended to assure that depository institutions acted in the best interests of depositors.

The regulatory structure of the securities industry recognizes that capital and money markets are essential to the health of all sectors of the national economy. Legislation concerning the securities industry has focused on three areas: providing for disclosure to investors, promoting self-regulation by the industry, and facilitating the development of a national market for securities. Federal regulation that is focused directly on the commodities futures segment of the industry is similarly designed and seeks to protect markets and individual traders.

Securities and commodities trading is overseen by a two-tier regulatory system: Federal and State government and industry. Federal regulation is focused on the oversight of markets and investor protection. State regulation of securities, commonly called "blue sky laws," since they were designed to prevent the sale of securities with the investment potential of the blue sky, preceded Federal regulation, and the right of States to regulate was preserved when the first major legislation concerning the operation of the securities industry, the Securities Act of 1933, was passed.

While Federal regulation focuses on disclosure without value judgment on the worth of the securities, State laws may actually involve licensing. Registration of an issue may be refused by a State authority, which would prohibit sale in that State.¹³ State laws differ, but efforts to develop uniform laws are being led by the North American Securities Administrators Association.

Self-regulation is imposed and enforced by the exchanges and by industry associations. While the industry began formally supervising its own operations with the development of the Buttonwood Agreement, the self-regulatory system was first recognized by Congress and subject to Federal Government

supervision with the passage of the Securities Exchange Act of 1934.

Federal Regulatory Agencies

Several Federal agencies play roles in the activities of the securities industry. The Small Business Administration licenses and regulates Small Business Investment Corporations, a type of venture capital firm. The Board of Governors of the Federal Reserve regulates the extension of credit by brokers, as mandated in the Securities Exchange Act of 1934, and has a major impact on the industry by regulating the activities of banks. However, responsibility for regulating the securities industry is held by SEC, and responsibility for the futures industry, by CFTC.

SEC was established by the Securities Exchange Act of 1934. Its regulatory activities are based on the belief that disclosure is the preferable means of assuring the smooth operation of securities markets; it is not invasive to the operations of industry players, and it retains investor choice. SEC also acts to prevent price manipulation of securities and regulates the the practices of exchanges, brokers, and dealers. It acts in conjunction with the industry self-regulatory agencies and oversees their activities.

While not a regulatory agency, the Securities Investor Protection Corp. (SIPC), a quasi-governmental organization, has brought a uniform investor protection policy to the securities industry. SIPC operates as a private non-profit membership corporation whose primary function is to provide financial protection for the clients of failed securities firms. The corporation was mandated by the Securities Investor Protection Act of 1970 in response to problems that occurred in the late 1960's throughout the brokerage industry as stock prices fluctuated widely and volume on the exchanges increased dramatically.

The only function of SIPC is to insure accounts. It covers shortages in accounts of up to \$500,000, including coverage for as much as \$100,000 in cash, for each account. Since it began operation in December 1970, it has

¹³U.S. General Accounting Office, *op. cit.*, p. 22.

paid out more than \$133 million in claims.¹⁴ SIPC assesses an annual fee on each of the 7,000 brokerage houses in the United States, which are required to be members of the corporation, to maintain the \$150 million level it is required by law to keep available to satisfy claims. At times, SIPC has acted as trustee in cases of brokerage house liquidations and as such has distributed payments to customers as accounts were settled.

The corporation relies on SEC and the securities industry's self-regulating organizations for notification that a member firm is in danger of collapse. If SIPC determines that the customers of the brokerage house are in need of its protection, it begins what is termed a "customer protection proceeding," which is a liquidation procedure. SEC is the only organization that can sue SIPC to force it to begin liquidation proceedings.

CFTC is responsible for regulating commodity futures trading on organized exchanges. It acts to prevent price manipulation, attempts to corner market dissemination of false or misleading information, and mishandling of traders' margin money and equity.¹⁵ It reviews and approves the instruments traded on the futures exchanges—i. e., futures contracts. CFTC oversees the activities of exchanges and other self-regulatory associations.

Disclosure for the futures industry involves not only the characteristics of specific contracts, but also the level of risk involved in this type of investment. All potential investors in futures markets are informed that they may experience large losses as well as gains and that it may be difficult to liquidate a position.

Industry Self-Regulatory Agencies

Industry associations and exchanges establish and enforce rules concerning the operations of the securities industry, rules that are often more stringent than Federal regulations. An implicit objective of self-regulatory agencies is to maintain the autonomy of the indus-

try. To meet this goal, these organizations try to ensure that the behavior of the industry is above reproach. They play a major role in overseeing the markets, market systems, and the individuals active in the industry. Self-regulatory agencies also have an educational role in dealing with both members of the industry and the public.

The two most significant securities industry self-regulatory organizations are NASD and NYSE. Their roles may be expected to grow as they continue to carry a great portion of all securities trading. The National Futures Association (NFA) is the self-regulatory organization of the futures industry.

NASD is a self-regulatory agency responsible for regulating the over-the-counter securities market and for promoting high standards of operation throughout the industry. It also establishes standards of professional competence. NASD was empowered through the Maloney Act of 1938 amendments to the Securities Exchange Act of 1934. Its central purpose—to promote high standards of commercial honor and just and equitable principles of trade throughout the industry—has become even more important to the industry as technology is applied.

NYSE *oversees* the operation of the exchange marketplace and administers rules and regulations related to the maintenance of orderly markets and the standards of professional competence. "NYSE is also a major source of information concerning the industry as a whole.

In 1981 NFA was designated a "registered futures association" by CFTC, which oversees its activities, with congressional endorsement. It began operating on October 1, 1982. NFA was formed in recognition of the continuing growth of futures trading to bring a uniform system of self-regulation to its activities.

NFA works toward four fundamental purposes: strengthening industry self-regulation by regulating those segments of the futures

¹⁴Christine Davies, "Brokerage Failures Bring Agency to Life," *USA Today*, Mar. 9, 1983.

¹⁵U.S. General Accounting Office, *op. cit.*, p. 26.

¹⁶U.S. General Accounting Office, *op. cit.*, p. 24.

industry that were previously outside the scope of self-regulatory organizations; eliminating duplication in self-regulation, thereby controlling expenses; eliminating overlap and conflicts in self-regulation of the industry by providing uniform standards; and aiding effective regulation by removing unnecessary regulatory constraints.¹⁷

Trends in Industry Regulation

Trading volume and the number of types of securities instruments have been increasing. The securities industry is being entered by players from other sectors of the financial services industry and by outside industries. It is likely that more demands will be placed on the oversight functions of the regulatory system. However, while the importance of this role is increasing, technology will facilitate this function by improving information flows on the operations of the industry.

While the oversight role may be streamlined, standards and education will require more attention. Changes in industry functions and the introduction of new products (facilitated by the application of information technology) will require an expansion of the educational role of the regulatory agencies. The continuing development of technology-based systems necessitates coordination of standards to ensure that different markets, both domestically and internationally, can interact.

Characteristics of the Securities Industry

Concentration

The securities industry is heavily concentrated. In 1982, the 25 largest firms, out of nearly 550 Securities Industry Association member firms, controlled nearly 75 percent of the total capital of the industry. The 10 largest investment banks controlled two-thirds of the profits for that segment. This high level of concentration results, in part, from the large number of mergers, reorganizations, and liquidations that occurred during the 1970's. The

consolidation activity was spawned by rising business costs for the industry and the weight of transaction processing, as the volume of trade had increased throughout the 1960's.

Throughout the 1970's several vertical mergers between brokers and investment banks occurred—most notably the acquisition of Reynolds Securities by broker Dean Witter & Co. and the purchase of White Weld by Merrill Lynch. These mergers integrated new issue management with the distribution of securities and may be considered an early move toward consolidation throughout the financial services industry.

Recent acquisitions and mergers seen in the securities industry have frequently involved players from other financial services industries. The product lines of firms are becoming both horizontally and vertically integrated with lines previously only offered outside of the securities industry.

Movement Toward a National Securities Market

The Securities Acts Amendments of 1975 directed SEC and the securities industry to create a national market system for both transacting and clearance. Movement in this direction is having a profound effect on the structure of the securities industry. Exchanges have been linked to a degree not previously seen, through development of technology-based information systems such as the Intermarket Trading System. Clearing systems involving the National Securities Clearing Corp. have made same-day settlement a possibility.

The driving force in developing systems that make a national market possible is the Securities Industry Automation Corp. (SIAC). The great increase in the volume of trading on the major exchanges in the late 1960's made it evident that the securities market needs the capability to deal with extensive volume. SIAC was organized both to operate and to develop more efficient and effective ways of dealing with the transaction process. SIAC systems support order processing, trading, and report-

¹⁷National Futures Association, *A Partnership Between the Public and the Industry*, Chicago, 1983, p. 11.

ing functions, as well as clearance and settlement for stocks, bonds, options, and financial futures. The corporation is owned by the New York and American Stock Exchanges,

One of the major impacts of SIAC on the securities industry is that it makes the development and refinement of technological systems a continual process. This should prevent or at least limit the lag between the identification of a need that could be best addressed with a technology-based system and the application of a solution.

New Entrants to the Securities Industry Entrance by Depository Institutions

An amendment, effective September 9, 1983, to Regulation Y of the Federal Reserve Board has added securities brokerage and related margin lending to the list of activities permissible for bank holding companies. This action, which extends from previous approval by the Government for the acquisition of retail discount brokers by bank holding companies (notably the BankAmerica Corp. acquisition of Charles Schwab), may increase the interest among bank holding companies in entering the securities industry.¹⁸

The motivation of banks for providing discount brokerage services may be seen as either a reaction to market conditions or an attempt to protect market shares. Since many brokerage houses are offering investment opportunities that serve functions similar to depository accounts, often with more flexibility and higher rates of return, the consumer's perceived need for a bank may be decreased. One motivation for providing brokerage services may be to prevent the potential luring away of other portions of a depositor's business.

While acquisition of a discount broker provides one method of expansion into securities for depository institutions, economies in operations made possible by the application of information technology have made other means of market entrance possible. Twenty-five sav-

ings and loan associations and savings banks own ISFA Holding Co., Ltd., which operates INVEST, a brokerage service, through a wholly owned subsidiary. Thrift institutions, which would not be able to enter the brokerage business independently, can offer transaction and advice investment services to their customers by subscribing to INVEST.

Special INVEST centers are placed in branches where they are accessible and evident to customers, yet remain separate and distinct, by order of SEC and the Federal Home Loan Bank Board, from the other operations of the thrift. Just as the securities industry is developing and offering new products to retain clients, this is also a basic motivation behind INVEST. Thrifts are thus able to expand the services they can offer their customers.

Trades conducted through new alternative brokerage services are executed through the exchanges, usually by way of a clearing broker. The securities industry finds itself in the position of servicing competitors, a situation that is quite common throughout the financial service industry. As capabilities and economies found in information technology continue to grow, more entrants maybe expected and the wholesale portion of the securities industry will probably grow.

Possible Entrants to the Securities Industry

Players throughout the financial service industry, including the securities industry, have been expanding their product lines to fill as many of their clients' needs as possible. Recognized economies of scope usually underlie this expansion of distribution systems, both for information and for community presence, and in terms of complementing current product lines. Providers often feel they can retain their customer base by entering other lines of financial services.

The entrance of other financial service players into the securities industry is already occurring. Several insurance companies have purchased regional brokers, and some depositories have acquired discount brokers. Shear-

¹⁸Federal Reserve Press Release, Aug. 11, 1983.

son/American Express and Prudential Bache are both results of mergers between players in different sections of the financial services industry. Consolidation within the financial service industry is likely to continue.

Others, not traditionally thought of as providers of financial services, have also entered the securities industry. The most widely cited example is Sears' entrance through the acquisition of Dean Witter.

Other players who may recognize significant economies of scope in entering the securities industry are firms in the communications and computer industries. These firms might be in an especially strong position to enter the wholesale side for the securities industry. Barriers to entry, such as exchange membership, may be overcome by technology. Computer and communications technologies allow for the creation of information and transacting systems not dependent on the current industry structure.

The Securities Industry and the International Market

The securities industry has its roots in the need for the American economy to interact in the international capital markets. However, prior to the completion of the transatlantic cable in 1866, a real international market could not exist because it was impossible to convey information in any meaningful time frame. Information technology has made it possible for the American securities industry to interact in the international market, while economic forces have made it essential.

Information technology has allowed a global capital market to develop, resulting in in-

creased opportunities both for investors and capital seekers. Foreign individuals and institutions made purchases and sales of \$79.8 billion of domestic corporate stock in 1982, and transactions in all securities resulted in a net inflow of \$14.3 billion in capital to the United States. 'g

Communications technologies are so advanced that a market anywhere in the world can be selected for trading. This could have significant impacts on the stability of the economies of nations. For example, the halting of trading on an exchange in one country could simply result in new trade in another nation. It is not clear what impact large differences in the valuation of a security by different countries could have on capital markets. International issues in the development of capital markets are being considered by various organizations. One such organization is the Federation Internationale des Bourses de Valeurs, an association of 30 stock exchanges in 20 countries.

The Effects of Information Technology on the Structure of the Securities Industry

The application of information technology in the securities industry affects its structure by facilitating the flow of information to such an extent that it removes geographic constraints on market participants and allows for development of international capital markets. It may also place additional barriers to entry to the securities industry. Without adequate access to telecommunication services, for example, a securities firm cannot function.

^g*New York Stock Exchange 1983 Fact Book*, op. cit., p. 63.

The Functions of the Securities Industry

The most significant role of the securities industry is in the development of capital. The institutions and players of the securities industry facilitate the development of capital

structures of organizations and corporations. While it would be possible for organizations in search of financing and potential investors to interact directly, the market structure that

has developed provides needed services more efficiently. Since most corporations and organizations do not approach capital markets frequently, financing with the aid of the securities industry is usually more cost effective than direct attempts because of the expertise securities institutions have in analyzing securities markets and in locating potential investors, and because of the ability of the securities industry to accept risk.

The use of information and communication technologies by the industry is nearly universal, and adjustments may be expected in operations as the value of technology is realized. However, while information technology may change the way in which the securities industry performs its activities, and may even facilitate attempts by investors to act on their own behalf, it is expected that the basic functions of the securities industry will remain an essential part of the development of capital. In this section, an overview of the functions of the industry and the emerging effect of the application of information technology on these roles will be described. The significance of the advisory, risk-accepting, and marketing functions of the securities industry to the process of gathering capital will be outlined, and the effect of information technology on this process will be summarized. Specific approaches to capital formation are discussed in appendix 3B.

The Securities Industry as an Advisor

In its advisory role, the securities industry provides information and offers guidance to its clients. It is able to advise organizations seeking capital on the type of financing most desirable, whether through private or public means, and, perhaps most significantly, what the timing for entering the capital market should be. These decisions are based on the objectives of the firm. Factors to be considered include the risk and return associated with various issuing organizations and instruments. Timing of buy and sell decisions is also part of this advice function.

Information Dissemination

Information technology affects information dissemination by the securities industry in several ways. Information is now less costly to gather, store, and access than it was in largely manual systems. Therefore, not only is it likely that the quantity and quality of available information will increase, but also that more information will be sought. Investors and other parties interacting with the securities industry may be expected to make better and more satisfying decisions because of the increased availability of information.

Technology has already had a major impact on information flows throughout the securities industry, and it appears that the resultant changes may have major impacts on the operation and, in time, the structure of the securities industry. Information technology enhances the reporting of securities trades. The Consolidated Quotation System, which went online in 1978, collects and disseminates quotation information from exchanges across the Nation and calculates and appends the national Best Bid and Offer to the quotation information.²⁰ Communication technology makes it possible to transmit this information in real time to system subscribers nationwide. A similar system is in place on the NYSE for debt issues. The Automated Bond System provides current quotation and trade information for more than 80 percent of the exchange-listed bonds.²¹ This system has improved the quality of information available on bond trading.

Information technology may increase the independent role investors assume as information monitors, particularly the individual investors. Although massive quantities of financial information are currently available through a variety of media, such as newspapers, radio, and television, and through publicly available consolidated tapes, individual investors may expect to have even more in-

²⁰Securities Industry Automation Corp., *Annual Report*, New York, 1982.

²¹New York Stock Exchange, *Annual Report 1982*, New York.

formation at their disposal. While a "more is better" philosophy is usually applied to information, the result can be confusing, deceptive, and frustrating to users. Moreover, information gathered by intermediaries within the securities industry may require translation to a form that can be used by clients.

The adoption of home information systems, particularly interactive cable and personal computer systems, may change the way in which this information is gathered and used. E. F. Hutton and Dean Witter provide customers with securities research that can be accessed via home computers.²² It is not clear how investors will use this information. The continual availability of new information may result in more frequent trading; however, home systems may just be, in the aggregate, a new medium. Investors may evaluate no more information than they did in the past.

Computer and communication technologies have increased the speed with which information is available to the mass market. With the systems now available, investors may become less dependent on a broker or dealer for updated information. An example of this type of system is Pocket Quote, produced by Telemet America, Inc. The basis of Pocket Quote is an 1 l-ounce programmable receiver, which looks like a calculator and can be used to monitor the New York and American Stock Exchanges as well as option exchanges. Information, including price and trade volume, on up to 20 securities specified by the user is transmitted, subject to a 15-minute delay. The data are broadcast in a scrambled form on FM side bands, using a digital signal. Not only is the information readily available to the investor, but the system can be programmed to page the user automatically at any time there is "news" about any investment instrument in which he/she is interested.

The potential for investors to act immediately on information continually updated and transmitted via such systems may affect the stability of securities markets. The ability of

²²Tim Barrington, "Stock Trading by Computer Enters Homes," *The Wall Street Journal*, Oct. 6, 1983.

the market to correct itself in unusual situations may be destroyed. In the long run, this may be a severe disadvantage for the investor, particularly the small investor, who may find himself bearing both transaction and lost opportunity costs because of action taken because of basically meaningless market fluctuations.

Counseling

The nature of counseling may be changed by the amount and type of information and supporting analytical tools available. Research is expected to become pivotal rather than passive in the investment advisory function.²³ Analysis and recommendations presented by securities industry intermediaries to clients concerning potential investments may be more detailed and, to complement this process, analysis of the financial needs of the individual may also improve.

Increased availability of information technology has changed the nature of counseling by placing more sophisticated analytical tools in the hands of both advisors and investors who may not have had access to these tools in the past. This change may affect the way in which investment decisions are made and the quality of these decisions.²⁴

The reliance on information technology for analysis of personal investment needs, objectives, and choices may indicate an initial move in the industry to reemphasize individual human judgment and perhaps a reemphasis of the client/broker relationship. It is not clear what the impact of this change will be; however, a decline in personalized service, based on the evaluation by the broker of the client's financial objectives, may occur.

While counseling may be displaced in some areas within the securities industry, its importance as a separate and unique service of the industry has been highlighted in some cases.

²³Thomas Moore, "Ball Takes Bache and Runs With It," *Fortune*, Jan. 24, 1983, pp. 97-98.

²⁴Lee B. Spencer, "The Electric Library," remarks to the American Bar Association, Federal Regulation of Securities Committee, Nov. 19, 1982.

Advice, particularly counseling, has been unbundled from the total package of services offered in a new service supplied by Merrill Lynch, called "Pathfinder." For a set fee, the client receives what amounts to a financial checkup. The evaluation provides guidance to the investor in a somewhat objective framework. The success of this product may be an indication of the future role of advice within the securities industry.

Acceptance of Risk by the Securities Industry

The securities industry accepts risk that might otherwise be experienced by individuals or organizations seeking investment. It does this in two ways: through underwriting and by the extension of credit through margin. Underwriting refers to the assumption of risk by an investment bank or other third party at the time of a public offering. The extension of credit by brokerage houses is referred to as margin.

Underwriting New Issues

Underwriting involves the purchase of securities from the issuing company and the subsequent resale of the instruments to the public. This service, which is usually performed by investment bankers, is essential to firms in need of capital that are not in the business of marketing securities. It allows them to receive the funds they need while transferring the marketing function to an expert who may be expected to be more effective in reaching prospective investors.

The underwriter accepts some of the risk associated with a public offering. He prevents lag time by assuring that the issuing corporation has access to the funds it is attempting to raise when needed. By buying the public offering from the firm in search of financing, the underwriter makes it easier for the management of the firm to plan the use of the funds generated. The issuing organization may be less concerned about the flow of cash the sale produces because it is usually guaranteed a fixed price and can use those funds when the

agreement with the investment bank or other underwriter is closed.

In most cases, the underwriter also assumes risk by assuring that the issue will be sold, and he accepts the risk that market fluctuations or initial pricing mistakes may influence the success of the issue. Offerings underwritten on a "best efforts" basis, where the underwriter does not bear the risk of an unsuccessful offering, permit those issuers in a startup or developmental stage, whose issues may be considered to be more risky, to have access to the public capital markets.

Underwriters earn money by buying securities at a lower price than they resell them for to investors. The difference in price, or spread, is a major consideration in the selection of an investment bank by a firm. A prospective client for an underwriter may choose an investment bank through two methods: competitive bidding or negotiation. Both systems have advantages, and experts disagree on which provides the best price for the capital seeker. The advantage of the negotiated system is that the issuing firm and the underwriter work together to make decisions about the pricing and timing of the issue.

The company using a competitive bidding system invites offers from investment bankers. This process is required for many public utilities and most municipal offerings. But while some experts believe it results in higher net proceeds for the issuing organization (because of the forces of competition), it has disadvantages. Much of the benefit of the advisory function that the issuing company would enjoy in a negotiated situation is lost. A higher price may be received, but this largely depends on the health of the market at the time of the offering. In a depressed market, investment bankers are less likely to compete for a public offering, and therefore the price received may be lower.

It is also typical for investment banks to minimize their risk by forming syndicates. This spreads risk and benefit because of their pooled sales force and allows a number of underwriting firms to participate together in

large public offerings. Changes in industry structure, particularly consolidation among investment banks, may affect this operation.

The presence of an underwriter provides a valuable service for the prospective investor. Investment bankers are expected to examine the corporate records with due diligence and are liable to defrauded investors if they fail their due-diligence obligations and miss any misstatement or omission of material fact by the issuer in the prospectus. Therefore, not only does an underwriter assure that the issue will be sold in a "firm commitment" offering, but it also provides an oversight function of the issuer on behalf of prospective investors.

The underwriter also frequently accepts risk through providing a secondary market for securities by maintaining a position in the stock. This activity, called "making a market," is similar to the role played by securities specialists, which is discussed in a later section. The underwriter quotes "bid" and "asked" prices for the security based on market supply and demand and intervenes as a buyer or seller, when necessary. The original offering of a debt or equity issue may be expected to be more successful when the potential investors know that the existence of a secondary market is guaranteed.

Information technology may affect the underwriting function by decreasing the time between the initial development of a securities issue and its sale, lessening the need of capital seekers to be protected against this lag. Pricing decisions and market evaluations may be more certain if the time frame in which the security is offered is lessened.

Price competition has been increasing in the area of underwriting. Since the use of syndicates is decreasing, there is a greater need for individual firms to have substantial capital if they are to continue functioning as underwriters.²⁵ Information technology may be a contributing factor in the advent of bought deals that involve the purchase of an entire issue,

usually by a single underwriter who has not lined up buyers in advance. While information technology may allow underwriters to locate buyers quickly, more risk is involved in this method than with a traditional syndicate.

The emphasis on price competition maybe a disadvantage for corporations entering capital markets because the benefits of advice on pricing and timing of an issue is sacrificed. While sophisticated analytical tools, which information technology may enhance, may assist corporations seeking financing in evaluating various possibilities, this type of analysis may not be tailored to the needs and objectives of corporations to the same extent as the information and counseling services provided by an underwriter.

Margin

"Margin" refers to the amount of money paid by an investor to acquire a security through credit instead of cash. At the end of 1982, the securities industry held nearly \$13 billion (\$12.98 billion) in margin debt secured by nearly \$39 billion (\$38.88 billion) worth of collateral.²⁶

The Securities Exchange Act of 1934 empowers the Federal Reserve Board to regulate this extension of credit. Brokers are permitted to extend regulated credit on stocks and convertible bonds traded on registered exchanges as well as some select over-the-counter stocks. Initial margin requirements, set by the Federal Reserve Board, currently call for a deposit equal to 50 percent of the total value for both stocks and convertible bonds. Stock exchanges and other self-regulatory agencies of the industry have individual requirements for the opening and maintenance of margin accounts. For example, the NYSE requires an initial deposit of at least \$2,000 and the maintenance of equity of the customer at 25 percent of the value of securities carried.

The advent of home equity access accounts, encouraged by advances in information technology, may increase the amount of margin

²⁵A. F. Ehrbar, "Upheaval in Investment Banking," *Fortune*, Aug. 23, 1982, pp. 90-95.

²⁶*New York Stock Exchange 1963 Fact Book*, op. cit., p. 46.

debt and change the nature of collateral. While some accounts restrict this use of credit drawn from home equity for the purchase of securities, in many situations this is acceptable.

Margin takes on a different meaning in option and futures contract trading. In futures trading, margin refers to the amount of money or collateral which a client is required to deposit with his broker to insure the broker against losses on open futures contracts. Option writers must, similarly, deposit cash or securities with their brokers so that the brokers are covered in case of an assignment.

Margin plays an important role in speculation in securities markets. A frequently used strategy in the buying and selling of securities is the "short" position. In this case, an investor sells securities he does not own, but has borrowed, to make delivery in the hopes that the price will decline before it is necessary for him to return the security. This activity can be extremely risky. However, it accounts for a significant amount of market activity. In 1982, 1.5 billion shares, in round lots, were sold short, an amount that was 9.3 percent of all reported securities sales.²⁷

Information technology may decrease the significance of margin as a convenience for brokerage customers because it eases access to assets and facilitates funds transfers. Customers may be able to finance securities purchases using other assets whose liquidity has increased as a result of increased use of information technology. It is not clear what the net effect will be; however, the use of electronic funds transfers may largely eliminate the use of margin by brokerage houses to provide float.

Marketing by the Securities Industry

For purposes of discussing the securities industry, "marketing" is defined as those activities designed to identify and meet the needs of clients; i.e., both seekers of capital and investors. It is assumed that these clients do not demand a specific product or type of service,

but rather, that the clients recognize an unfilled need and seek a way to meet it.

At one time the operations of the securities industry were centered on what was possible, given the regulatory framework and its business concerns. Now, a new awareness of the importance of basic marketing to retain and develop business is evident, resulting in research to support activities in product development and promotion and the targeting of specific segments of the population for specialized products. Given the competition the industry faces in its traditional and new product lines, especially from new entrants into the financial service industry, the marketing function may be expected to continue to grow in importance for the foreseeable future.

Information technology may affect those marketing functions of the securities industry that comprise product development, sales or brokerage, and pricing.

Product Development

In recent years, the regulatory restraints on the financial service industry have decreased, and the securities industry has found competitors in what at one time were strictly separate businesses. These developments have occurred when the securities industry was observing a continual demographic and psychographic change among its potential retail clients, a growing institutional market, and more complex financial needs among organizations seeking capital.

Shifts in the area of product development are seen mainly in the way products are packaged, specifically in the variety of mutual funds and money market mutual funds that have been developed. It is not yet clear how patent and copyright laws will affect the development of information technology-based financial services products. If financial service products become patentable, some securities industry experts believe that competition could be stifled.²⁸ Many financial service products are similar in both character and features,

²⁷*New York Stock Exchange 1983 Fact Book*, op. cit., p. 48.

²⁸"Merrill Lynch Wins Cash Account Row With Dean Witter," *The Wall Street Journal*, Dec. 29, 1983, sec. 1, p. 2.

and therefore, there is an inherent possibility of patent infringement. Differentiating products by attribute has not been of great interest to the financial service industry, which has competed by geographic market and comparative return and cost.

Information technology has created interest in patenting financial service products because communications and computer technologies have broadened markets. Products that at one time may have been offered locally now compete nationally. Therefore, protection of product may become as necessary as the positioning of the product.

The patentability of financial products is now being tested in cases involving the central-asset account. In response to perceived consumer demand, most major firms in the securities industry, including Dean Witter, Paine Webber, Shearson/American Express, and Prudential Bache, have introduced these accounts, which are combination margin accounts and investment funds. Merrill Lynch led the development of asset management accounts with its introduction of the cash management account in 1977, for which it received patents in August 1982 and March 1983, and, with over 1 million accounts, is the market leader. Following the receipt of its patent, Merrill Lynch notified competitors that it was imposing an annual licensing fee of \$10 on all asset management accounts. Initially, this levy was not taken seriously throughout the industry; however, without admitting any patent infringement, Dean Witter resolved its dispute with Merrill Lynch about the accounts in late December 1983 for \$1 million. The firms agreed to "grant each other a nonexclusive, royalty-free license to use any improvements or changes either might make relating to central-asset accounts."²⁹

If financial service accounts are routinely patented, investors may find that their choices are limited, since the patent may be a barrier to entry into some product lines for some service providers. Since players within the securi-

ties industry may be expected to make efforts to distinguish similar products legally, patenting may also increase consumer confusion about product features and attributes.

Brokerage

Brokerage involves bringing together buyers and sellers, facilitating trades through the maintenance of a marketplace, and assuring that the trade is complete. The significance of this activity as part of the operations of the securities industry cannot be overestimated. Traditionally, all of the costs of supporting an investment bank or brokerage house were recovered through this portion of the business. The services provided to clients, such as research support and advice, were bundled into the commission rate for purchasers of securities and into the spread on new issues for investment banks.

The heart of brokerage with retail clients has been personal selling. The relationship between the investor and the individual broker has been fairly constant, and typically, the accounts a registered representative develops while with a particular brokerage house move with him if he/she switches firms. Firms within the industry have expended great effort in attempts to retain clients. The development of new products unique to particular houses may encourage a loyalty to the company rather than to the broker. It is not yet clear how this might change the character of the industry.

Most technology-encouraged competition is occurring within the selling function of retail and institutional brokerage. The end of standardized commissions on the sale of securities (1975) has encouraged the entrance of discounters into this market. *Discount brokers* complete trades for investors at prices that are generally lower than the commission charged by full-service brokers. Usually, the service provided by discounters is limited; e.g., these firms usually do not support extensive research and advice operations. However, they do fill the needs of a portion of the market. About 15 percent of trading by individual investors is handled by discounters.

²⁹Ibid.

Access to information technology for individuals will facilitate direct selling of securities to investors without the interaction of a broker. This type of system is particularly adaptable for discount brokers whose service is basically order-taking. C. D. Anderson & Go., a small discount broker, developed the first home brokerage system, and other brokerage houses are expected to enter this market.³⁰ C. D. Anderson's system allows clients, who pay a hook-up charge and a usage charge, to enter buy and sell orders at their convenience, without dealing with a broker.

Transactions

Congress mandated the development of a computerized national stock market system in 1975, believing that by linking all market centers, such a market would expose securities to a greater number of buyers and sellers, and an investor would have the chance to obtain the best price available. This system was also expected to provide competition to NYSE, which dominated the market with 80 to 90 percent of the trading volume.

The Cincinnati Stock Exchange was expected by many industry experts to become the basis of an automated national stock exchange. The exchange was supported by Merrill Lynch, the largest firm within the securities industry. In July 1983 Merrill Lynch withdrew a large portion of its business from the Cincinnati Stock Exchange and returned it to the floor of NYSE, noting that not only had the Cincinnati Stock Exchange failed to gain the volume anticipated, but that NYSE had improved.

While NYSE is still largely based on a system of auction pricing and securities specialists, the adoption of systems made feasible by the application of information technology has allowed it largely to eliminate problems associated with high volume. In addition, communications systems have been developed that allow users of NYSE to enjoy many of the benefits of a national system by providing information on the activities of regional ex-

changes. One such system, the Intermarket Trading System (ITS), may be seen as being indicative of a trend toward a national market for securities trading.

ITS allows brokers, specialists, and market makers to interact with their counterparts at other markets. The system, maintained by SIAC, currently involves eight stock exchanges: New York, American, Boston, Philadelphia, Cincinnati, Midwest, Pacific, and, to a limited extent, NASDAQ.

ITS provides a mechanism through which the most favorable exchange setting can be chosen for a transaction. * At NYSE, the best price from any member of ITS, as well as the NYSE floor price, is displayed. If it is advisable for a trader to deal on an exchange other than the one at which he is operating, he can enter his order by contacting his counterpart there. At the end of 1982, 1,039 issues were eligible for trading on ITS. NYSE reports that this represents most of the stocks traded on more than one exchange.

The Designated Order Turnaround (DOT) system was introduced in 1973 to route small orders (599 shares or less). It reports electronically between NYSE and member firms. DOT bypasses floor brokers by routing orders directly to the appropriate trading post on the floor of the exchange and, following execution, back to the member firm on the same electronic circuit. Over 80 percent of the 5.7 million market orders processed through DOT in 1982 were executed and reported back to the member firm within 2 minutes.³¹ This system minimizes the cost to member firms of handling small transactions while giving small investors the benefit of timely execution of their trades. DOT may also provide a better price than would normally be received by a small investor. A trade made through DOT is matched by computer for price with the most recent trade of that issue. The investor benefits because the price he receives may have

*For purposes of this discussion, "transacting" is defined as the physical execution of trades.

³¹New York Stock Exchange 1983 Fact Book, op. cit.

³⁰Carrington, op. cit.

resulted from price negotiation on a much larger order.³²

Another technology-dependent system that facilitates transacting is the Opening Automated Report Service (OARS). OARS makes efficient and accurate processing of market orders, that are received at NYSE prior to the start of daily trading, possible without causing unnecessary delays in the opening of trading, and transmits computer-generated reports to the originating member firm.³³ This system is especially valuable to specialists on days with high trading volume, which have recently been occurring with great regularity.

Future developments in transacting enhanced by information technology may include the bypassing of intermediaries in the process of selling. Some experts believe that the adoption of home information systems may make it more common for investors to complete transactions between themselves privately or to gain direct access to exchange floors. While it does not appear that the possibility of off-market trading is having a major impact on the individual investor at this time, institutional investors have at times found it advantageous to trade off-market.

About 500 brokerage houses, pension funds, insurance companies, and other institutional investors are linked through AutEx Systems, a nationwide computer network. The potential of this system for trading was demonstrated by its use in creating a market in a stock for which trading had been closed by NYSE. Jefferies & Co. is a discount broker specializing in institutional trading. It is not a member of any major exchange and therefore is able to make a market in an exchange-listed stock without going through the exchange. Following a request by a client, Jefferies announced over the AutEx System that it was making a market in the closed stock. The company traded a total of about 8 million shares of the stock off-market.³⁴

³²Desmond Smith, "The Wiring of Wall Street," *The New York Times Magazine*, Oct. 23, 1983, p. 109.

³³New York Stock Exchange, *Annual Report 1982*, New York, p. 33.
³⁴Smith, op. cit., p. 73.

Given that the primary responsibility of securities exchanges is to maintain an orderly market, technology, the great facilitator of their operations, could also be a major undermining force for the exchanges. It is basically meaningless to stop trading for a security on an exchange if the end result is simply that trading is moved off of the exchange and conducted without the prudent management of the specialist. It may be essential for exchanges to continue trading a given security in all but the most unusual situations.

Clearance and Settlement of Securities

Clearance and settlement activities consummate trades through the exchange of securities and funds.³⁵ As with any marketplace, an action recognizable to all parties involved is necessary for finalizing a transaction. Given the great number of participants in the securities industry, it is essential that transactions be closed as efficiently as possible in a manner that is acceptable to all parties involved.

The increasing volume of trade and the continuing development of new securities products has made it necessary to refine settlement and clearance. Since ownership is merely contractual until the process is finalized, delays in settlement and clearance could have a severe effect on the operation of securities markets. An industrywide effort is under way to move toward a national settlement and clearance procedure through the adoption of standardized proofs of ownership that are not paper-based, such as book entry, and to facilitate effective, marketwide clearance through the use of automated systems that assist in the closing of positions.

Clearance and settlement are recognized as an important portion of the national market system. The formation in 1977 of the National Securities Clearing Corp. (NSCC), for which SIAC (Securities Industry Automation Corp.) is facilities manager, encouraged movement toward a national clearing system. NSCC combined the clearing corporations of NYSE, the

³⁵National Securities Clearing Corp., *Annual Report 1980*, New York.

American Stock Exchange, and NASD. It has provided more efficient clearing at lower costs per trade for listed and over-the-counter trading than was previously possible. SIAC facility management for NSCC services integrates several major processes and entities in the settlement process (see fig. 5).

One pivotal change in the settlement process was the development of Continuous Net Settlement (CNS). CNS represented a change in accounting approach to the provision of continuous net positions against the clearing system rather than a daily balance order accounting.³⁶ In addition to improving clearing operations, savings recognized through the application of CNS have included manpower and same-day delivery of securities. An important link in this system is the Regional Interface Operation, which allows member organizations to trade on any exchange and bring settlement to the clearing facility of their choice.

The Options Clearing Corp. (OCC), which is owned by the options exchanges, is the clearing entity for options trading. It supports the clearing members and participant exchanges by acting as the issuer of all cleared and settled options, guaranteeing option contract performance and fungibility, and effectively performing trade clearance, settlement and associated clearing functions, and other securities industry services.³⁷ The primary objective of OCC is to provide these services in the most cost-effective manner.

Information technology has been essential in the refinement of the clearing and settlement process. It will affect it further through some changes that will be felt in the market as a whole. If substantial trading is conducted off-market, general access to the automated settlement system may be demanded.

Pricing

Pricing occurs at two points in the securities industry: investment bankers assist in the initial pricing of new issues, and exchanges

provide a framework for price adjustments for securities. Price in its most pure form is a function of supply and demand. For securities, this is generally defined to mean the net present value of anticipated cash flow, in terms of what is received in interest or dividends and resale. Initial pricing decisions on new issues are particularly sensitive for the securities industry since the risk associated with errors usually falls totally on the underwriter. If the price is not in line with value as perceived by the market, the issue will not be bought.

Pricing for securities in secondary markets may be done on a historic basis or by auction. Automated trading systems are based on a historic pricing mechanism; that is, the price of an instrument is determined by its past behavior. Prices in the auction system are determined by market demand. Proponents of this system believe that the auction gives a truer evaluation of the worth of the issue and is therefore beneficial in the aggregate to both sellers and buyers.

The operation of the secondary market for securities provides a method for correcting prices. Securities specialists perform a pricing function on exchange floors in fulfilling their function of maintaining an orderly market. The specialist, an independent businessperson, performs this function as an auctioneer, buyer, and seller of securities. He makes a value judgment about the opening price of a security at the beginning of each day when opening trading. Although no trading may occur throughout the day, this establishes a price of record.

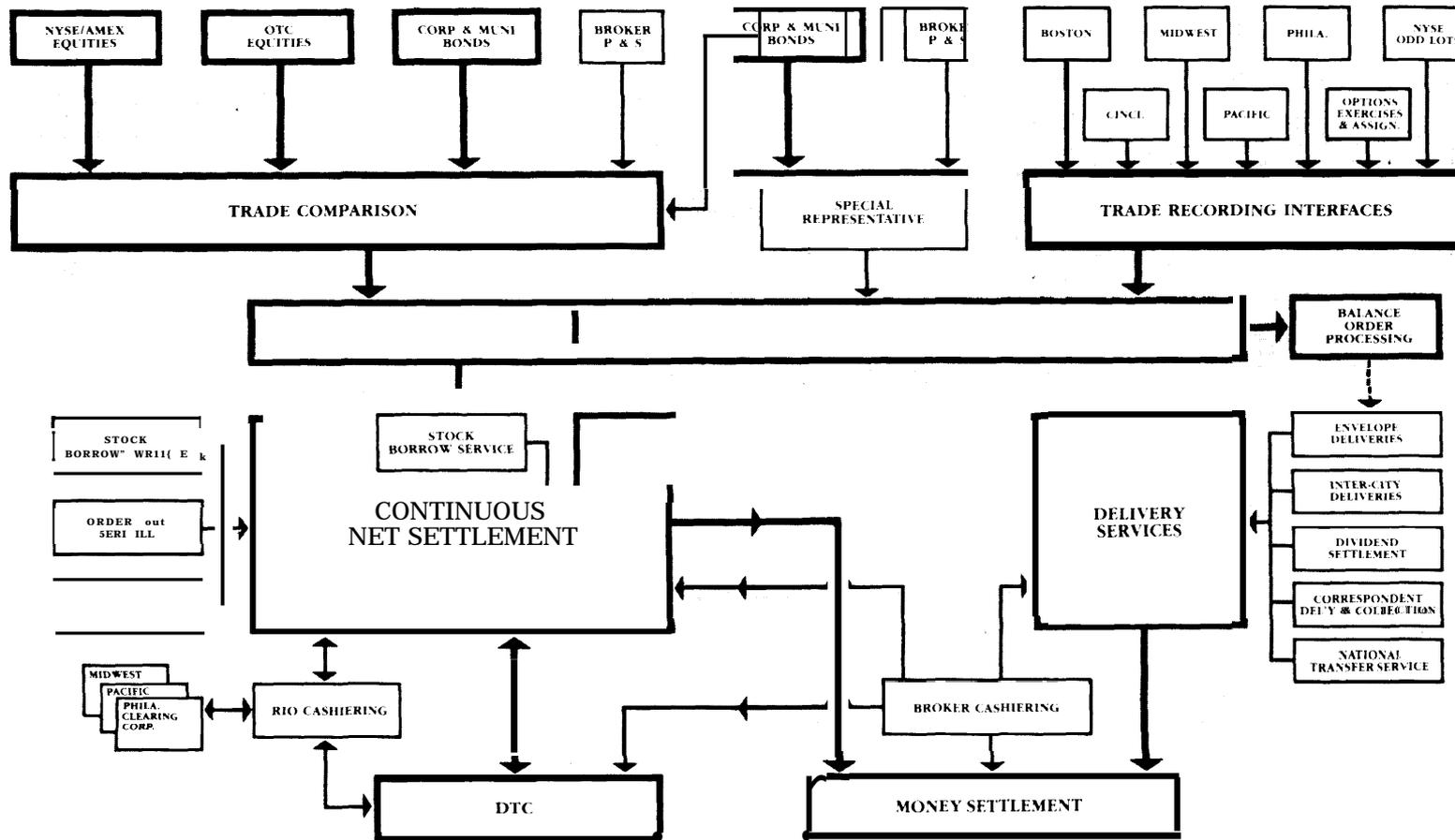
The specialist facilitates trades by interested brokers on the floor and stands in as a buyer or seller at times when demand and supply on the floor do not mesh. By standing in as a buyer or seller, the specialist maintains an orderly market by assuring that price changes occur in small increments. This allows investors to assess the market situation of a security in a rational fashion.

NYSE now offers a technology-based system through which investors can more easily interact with the market when they want to sell a security at a set price. The limit order

³⁶Securities Industry Automation Corp., *A Decade of Progress*, New York, 1982, p. 8.

³⁷The Options Clearing Corp., *Annual Report 1971*, Chicago.

Figure 5.— Overview of SIAC Facility Management for NSCC Services



NOTE In addition to acting as facility manager for the National Securities Clearing Corp, SIAC provides clearing services for AMEX options. AMEX gold coins and NYFE futures Support services are also provided for the Options Clearing Corp Pacific Clearing Corp and Depository Trust Co

SOURCE: Securities Industry Automation Corp

system electronically files orders to buy or sell when a specific price is reached. These orders are delivered to the appropriate trading post or member firm on the floor. Orders can be limited to a single day or to their cancellation.

In the context of the securities industry, pricing has referred solely to the investment instruments of corporations and organizations. Pricing can also be expanded to the actual services of the industry, whose basic functions are being unbundled. Although within the securities industry pricing is most clearly evident in the selling and advising function, it is a factor throughout the entire financial service industry. The securities industry may have an advantage relative to other financial service providers in this area because of the expertise it has in analyzing markets and in pricing issues.

Technology and the Functions of the Securities Industry

Technology is changing not the functions of the securities industry, but rather how they are performed. The number of corporations

seeking financing, the number of potential investors, and the level of trading demanded have all increased to levels that could not be anticipated when the securities industry was developing. The one element which has not increased is the number of hours in a day, and technology makes it possible to overcome that handicap in processing the level of activity demanded by the market.

Time and distance are no longer obstacles to communications for the securities industry. Because of this, securities markets may become less location-dependent and, as a result, less physically structured. It will be necessary for the industry to make efforts to assure that the basic purpose of the markets is retained.

Information technology will generate a faster reaction by the securities industry to changes in market conditions and consumer demands because communications and computer capabilities may lessen consumer response time. The market can be expected to operate at a more rapid pace, and while it may be possible to monitor change more precisely, this market will require quick and well-developed decisionmaking.

The Effects of Information Technology on Securities Instruments

Securities instruments are designed to satisfy both the goals of investors and the need of corporations and organizations to gather capital to finance industrial research and development and resulting expansion or diversification. Securities instruments are of interest in discussions of the effect of information technology on the financial service industry for several reasons. First, the direct impact of technology on the securities industry, from the point of view of the consumer, may be most strongly felt in the way in which the characteristics of investment instruments are changed. Second, the intrinsic characteristics of securities instruments may affect the way in which

they evolve in a technology-intensive environment. As information technology changes the way in which the securities industry operates, the relative importance of various investment instruments may be affected by information technology.

Third, interest in instruments that are now on the market may be predictive of which investment products may best meet future demands of consumers in terms of liquidity, level of risk, and return. This type of activity has already been seen in the financial service market in the development of money market mutual funds, which were patterned after the idea

of mutual funds and met the consumer demand for more liquidity.

The development and trading of securities instruments is largely dependent on the application of information technology. Such technology has also had a major impact on the calculation and payment of return and the recording of ownership. The rate of growth seen in options and many types of futures contracts would not have been possible without communications and computer technologies. As securities markets become more technology-based, it must be expected that investment instruments will also.

However, it is unlikely that technology will be the sole cause of the development of any new securities product, although it may change the characteristics of some investment products or expand their application to such an extent that they are different in function and operations. As a result of these changes, both investors and their advisors will have to examine their methods of evaluating potential investments. The characteristics of investment instruments may be expected to change in four ways because of the application of information technology: liquidity of instruments, the packaging of securities products, the way in which potential investments are analyzed, and the importance of speculative markets.

The liquidity of an investment instrument is determined both by the contractual term of the instrument and the speed with which the investor can trade or redeem the instrument. New communications technologies, notably interactive cable and the adoption of personal computers with networking capabilities, have been applied to allow investors greater access to securities markets. For example, systems available to individual investors provide updated information continually on price and significant activities involving securities in which the investor is interested. Easier access to this information changes the way investments are analyzed by making it easier for the investor to make decisions on his portfolio in a short time frame.

Securities products are being packaged, often with products from other financial service industries, to fill a wider range of investors' financial needs. This trend is likely to continue as the number of investment options increases and the demands of users become increasingly more complex. Much of the new product development that will be seen in securities markets may result from the increasing role of speculative markets. The ability of investors to use speculative markets is increased by the application of information technology.

Appendix 3A: Securities Instruments

This appendix describes, the characteristics of debt and equity instruments as well as options and future contracts. The relationship of information technology to these products and the future effects of this technology are outlined.

Corporate Capital Structure: Debt and Equity Issues

The capital structure of a firm is determined by the mix of securities it issues. Capital is developed through internal sources—i.e., retained earnings—and through the issuance of debt and equity. A corporation tries to maximize its market value

through this structure. There can be as many unique capital structures as there are corporations. The financing plan chosen reflects the operating and growth objectives of the organization.

While the basic purpose of all debt and equity issues of a firm is the same, to gather capital, they represent different costs and concessions for the issuing organization. The return offered and risk involved for the investor also differs substantially. When debt is issued through bonds, the investor becomes a creditor to the organization; the firm assumes a noncontingent obligation to pay the investor a definite sum of money. Equity issues grant ownership in the corporation in return for investment. Such shares of stock represent owner-

ship rights proportional to the value of the share of the firm purchased at the time of investment.

Financing through debt is developed both through money markets and capital markets. Money markets are basically wholesale markets whose major function is liquidity management. They are centered on short-term instruments through which organizations can manage such operating factors as cash flow. Capital markets are centered on long-term securities, including both debt issues and stock, and represent the development of financing for long-term projects and goals for the organization, such as equipment purchases, research and development, and expansion.

Long-Term Debt—Corporate Bonds

When money is borrowed on a long-term basis, the contract representing this debt takes the form of a bond. A corporate bond is a fixed, noncontingent, long-term obligation to pay a definite sum of money and interest on that amount. The fortunes of the corporation affect the resale potential of the security but cause the bondholder neither benefit nor loss in terms of return, assuming that the corporation does not default on the issue.

The market value of the instrument is the present value of the payments stream to the investor, using market interest rates. The bondholder is a creditor to the corporation and as such has a claim on the assets prior to any by the owners. Corporate bonds have a fixed return, known as a coupon rate, and a specific maturity. The financial benefit the investor realizes from the bond depends on market conditions at purchase and investment opportunities at the time of maturity. A bond issue may be distinguished in several ways, most notably: how the contract is guaranteed in case of bankruptcy, call provisions, registration, the way in which interest is paid, and the way in which the bond issue is retired.

SECURED AND UNSECURED BONDS

Bonds may be classified as secured, or mortgage, bonds or unsecured bonds, called debentures. *Mortgage bonds* are backed by specific corporate assets and were historically most popular among regulated industries, such as railroads and utilities. A closed-end provision in a mortgage contract requires that the corporation secure no additional bonds on the lien. The majority of contracts, however, include an open-end provision that allows for the issuance of additional bonds

against the property. From the investor's point of view, the value of the mortgage lies more in the potential resale value of the pledged property in the case of corporate failure than in the exclusivity involved.

Debentures are guaranteed by the general credit of the corporation. They have become the most popular form of bond issue across the economy and are particularly useful for industries in which many assets may be intangible, such as in publishing, or have a limited lifecycle, as is the case in many high-technology industries. Most issues of debentures include a negative pledge clause that provides that the firm will issue no new debt having priority over the bonds covered by the agreement. This helps ensure that the risk to the investor does not increase over the life of the bond. Debentures are usually subordinate to bank loans and short-term debts.

BEARER BONDS AND FULLY REGISTERED BONDS

Registration of bonds affects the extent to which the investor is protected in case of loss or theft, the way in which interest is paid, and the ease with which ownership can be traced and transferred. The ownership of a fully registered bond is recorded in the register of the issuing organization or agent. Company records comprise proof of ownership, and interest is paid directly to the holder of record. If the bond is traded, the issuer or agent must be notified so that ownership rights may be transferred.

For a bearer bond, the certificate issued at the time the debt instrument is developed is the only proof of ownership. Ownership rights are enjoyed by whoever has possession of that certificate at the moment. Many investors find that the ease with which the bonds may be transferred and the lack of traceability outweighs the risk of losing the paper. This type of bond is an extremely flexible, cashlike instrument.

Whether a debt instrument is a registered bond or a bearer bond affects its value and appropriateness as an investment for particular investors. Since July 1, 1983, the Federal Government has required all new bonds to be registered to make it easier for the Internal Revenue Service to determine to whom interest is paid and to trace any changes in ownership. However, there is still a significant secondary market in bearer bonds.⁷ As the

⁷"The High Price of Financial Privacy," *BusinessWeek*, Aug. 1, 1983, p. 97.

bearer bond is eliminated from the market, some increase in demand for different instruments that safeguard the privacy of the investor to a similar degree may be expected.

A significant difference between bearer and registered bonds from the point of view of both issuers and investors is the way in which interest is paid. The holder of a bearer bond initiates the payment of interest by depositing the appropriate coupon at the financial institution of his choice. Federal Reserve collection mechanisms are used by the institution to obtain credit for the interest due. Usually, the depositor is paid the interest by the financial institution prior to the completion of this process; in most cases, immediate use is granted. The payment system for bond coupons is extremely paper-based. The physical coupon "follows" the collection process.

Greguras and Carlile suggest that as new technologies make it possible to record essential information in the physical coupon in a format that can be used by electronic systems, this type of system will allow financial institutions quicker access to their funds and, as a result, benefit the investor.¹ Information contained in the coupon could be transformed to electronic form at the point at which the coupon enters the redemption process.

The electronic system proposed would result in little, if any, change in the action required by the investor. Presentation of coupons would remain the same; from the investor's viewpoint the coupon is already truncated since it is never returned to the holder. Cost-saving benefits result for the issuer of the bond, the paying agent, and the financial institution used by the bondholder. Greguras and Carlile point out that computer sort capability could replace the current labor-intensive system used by issuer and holder.³ The electronic system would be faster and would facilitate the development of computerized bookkeeping and settlement systems. It is not clear how the end of new issues of bearer bonds will affect the possibility of automating the interest payment process, although the potential application of this type of system will naturally decline.

The payment of interest on registered bonds is easier because the paying agent knows the holder and initiates the payment process. Greguras and Carlile note that there is a great potential to use automated clearing houses (ACHS) for these transactions. Following the issuance of a payment or-

der specifying which accounts should be paid by the bond issuer or paying agent bank, the ACH could take responsibility for routing these interest payments, which would be credited to an account specified by the bondholder. Savings would result from the elimination of check-processing costs.

RETIREMENT OF BONDS

Bonds may be retired by payment at final maturity; by conversion to common stock if the instruments are convertible; by refunding, through enacting a call provision; or through periodic repayment, if the bond is a sinking fund or serial bond issue.

Many bonds contain a provision allowing the corporation to "call" or repurchase the debt instruments at any time. This gives corporations flexibility if market conditions change before the bond matures. The call price is usually above the face value of the bond, but generally this premium decreases as the maturity date is approached. A corporation may move to call a bond because of a drop in market interest rates or to be free of restrictive protective covenants that may have been necessary to gain financing initially. The initial debt contract specifies whether the call provision is immediate, that is, can be invoked at any time following issue, or deferred, in which case the investor is assured that no call will take place for a definite period of time, usually 5 to 10 years.

Call provisions become a disadvantage to investors when the stable return anticipated when the debt instrument was selected for investment is lost. The investor may find it necessary to select an alternative investment. If interest rates have dropped since the original investment, the investor must not only bear additional transaction costs but also, in some cases, select between less attractive investment alternatives.

For tax purposes, the income gained by the investor from the call premium is treated as a capital gain. For the corporation it is deducted as an expense from ordinary income. Many experts believe that the net tax advantages received by the investors and the corporation make call provisions attractive to both parties.⁴

Refunding involves the replacement of one bond issue, prior to maturity, with a new issue of bonds. A corporation may wish to refund an issue to escape restrictive protective covenants, but the most common reason is to take advantage of a drop in

¹Fred M. Greguras and Larry L. Carlile, "The Use of Electronic Banking for Bond Coupon Payments, 1980.

³Ibid.

⁴James C. Van Home, *Financial Management and Policy* (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1983), p. 555.

market interest rates. Market conditions must be extremely favorable for the issuing corporation to justify the expenses involved in refunding, which include the cost of calling the old bonds, issuing the new bonds, and, possibly, expenses resulting from the payment of interest on the old bonds during any overlap period.

The repayment of a total issue of bonds at maturity could present a severe cash strain for the issuer. Therefore, two methods have been developed through which debt issues are retired in a more controlled and gradual manner: the issuance of serial bonds and sinking fund provisions. Serial bonds give an investor a choice of maturity dates. The entire package of bonds is issued by the corporation at the same time, but the bonds mature individually in successive years.

Most bond issues carry a provision requiring that the corporation retire a given number of bonds per year through a sinking fund managed by a trustee. The bond issuer makes payments into the fund, with which the trustee finances the retirement, by calling or purchasing bonds selected (usually) by lottery. While calling before the anticipated maturity date may be undesirable for the investor, most investors value the assurance of orderly retirement of debt and liquidity provided by a sinking fund provision. For bondholders whose instruments are not called, the sinking fund may represent a reduction in risk, as the total amount of debt the organization holds is continually reduced.

PAYMENT OF INTEREST

The return of most debt investments is embodied in a periodic interest payment referred to as the coupon. It is designed to compensate the investor for the time-value of money, the lost opportunity cost, and the risk assumed. Usually, this is a semiannual payment. The market value of the bond is determined by the present value of this stream of payments. Bonds with less traditional payment schedules have developed in response to market pressures. These include income bonds, zero- and low-coupon bonds, indexed bonds, and floating-rate bonds.

While most bonds are strictly debts of the corporation, for which interest must be paid regardless of the corporation's financial situation, interest is only paid on income bonds when the earnings of the corporation permit. The corporation benefits from the tax advantages of debt, since any interest paid is deductible because it is part of a contractual agreement. Also, unlike preferred stock, which

is discussed later, the decision to pay interest belongs to management rather than the board of directors. If not paid, interest accumulates and is senior to preferred and common stock dividends and subordinated debt.

Income bonds are unpopular with investors because the income stream from their investment is unpredictable. Some experts also believe that the past association of this instrument with corporations, particularly railroads, trying to avoid bankruptcy has made them unattractive to investors. As a result, income bonds are used primarily in reorganizations, which of course may perpetuate their negative image.¹

Return paid on a *zero-coupon* bond is embodied entirely in price appreciation to maturity. No periodic interest payment is made. This bond offers two advantages to the investor: the bond cannot be called, so the holder experiences no reinvestment risk, and an exact return is assured if the instrument is held to maturity. For tax purposes, the investor must declare the interest accrued in a given year as interest income, despite the fact that this money is not available for his use. The corporation also deducts the interest expense for the year accrued, although no actual payment is made. While the corporation enjoys the advantage of no cash outlay until the maturity date of the bond, the no-call provision is a disadvantage if market interest rates fall during the lifetime of the bond.

Two types of bonds, floating-rate and indexed, have become more popular in response to the concerns of both issuers and investors that long-term debt instruments have generally been locked into a rate of interest that reflected market conditions at the time of issue, but that may not be desirable if market conditions change. For example, *floating-rate bonds*, which include instruments for which the interest rate is set in relation to 90-day Treasury bills, may be attractive to an investor who believes that interest rates are likely to rise during the lifetime of the bonds, and to an issuer who feels rates will fall. To both parties the uncertainty about the return that will be received and the cost of the borrowed funds may be disadvantages.

The return on *indexed bonds* is tied to the rate of inflation and therefore is considered fixed in real terms. These bonds become popular in times of high inflation. In theory, any index can be selected as a basis for setting the rate paid on this type of

¹ *ibid.*, p. 551.

bond; however, in the United States the Consumer Price Index is generally used.

Information technology may be expected to increase the number and complexity of different types of interest-paying plans for bonds. Indexed and floating rates can be designed to respond more quickly to changes in the base line on which interest is determined. This may result in some confusion for bondholders, as change may occur at such a rapid rate that the logic behind it may not be perceived. More complex interest-paying arrangements will require special attention to the disclosure of these bond characteristics for investors, a role likely to be the responsibility of brokers and issuers of bonds.

RATING OF BONDS

Two highly respected rating services for bonds are Moody's Investors Service and Standard and Poor's. Their ratings result from an analysis of the financial and business prospects of the issuer and are used by individuals and financial institutions as a tool for assessing risk.

Moody's Investors Service offers nine possible ratings, ranging from a low of C, which represents extremely poor prospects for the issuer, to a high of Aaa, which represents an extremely low amount of risk and predicts that it is unlikely that any negative change will affect the issue. Generally, organizations with poor ratings must pay a higher rate of interest to borrow funds to compensate lenders for risk.

It is rare for the rating of an issue to change. Any reevaluation by Moody's or Standard and Poor's indicates a very substantial change in the condition of the issuing firm and attracts a great deal of attention from investors.

Those bonds that Moody's rates "Baa," the fourth highest rating, or above are considered investment-grade bonds. Some financial institutions, including some commercial banks and many pension funds, are not allowed to invest in any issues that do not make this grade. Some experts believe that rating services have caused certain types of organizations, particularly municipal governments, to pay higher than warranted interest rates because of unfavorable and perhaps somewhat subjective ratings.⁹ However, investment counselors and investors still rely heavily on the rating services.

⁹Brealily and Myers, p. 468.

Information technology may be expected to create more competition in rating bonds as the capacities of new online computers and interactive cable are explored. As technologies become more sophisticated and interactive systems become less costly, it has become possible to personalize rating services to the objectives of the individual investor in real time.

BOND TRUSTEES

As will be discussed later, the interests of the shareholders of a corporation are represented by the board of directors. Bondholders have a special representative—the trustee—who is not part of corporate management and who is expected to act in bondholders' best interests. Paid by the issuing corporation, the trustee is usually a commercial bank. The responsibilities of the trustee for bond issues over \$1 million are specified in the Trust Indenture Act of 1939 and involve protecting the rights of the bondholders by ensuring both that the initial contract is legal and, following the issue, that the corporation fulfills its contractual responsibilities to the bondholders. This act, which is administered by the Securities and Exchange Commission (SEC), requires that the trustee act strictly in the best interests of the bondholders.

It is the responsibility of the trustee to act to protect the interests of the bondholders if the company is in default—that is, fails to meet the provisions of the bond contract. This responsibility has been brought to the forefront by the recent default on Washington Public Power Supply System (WPPSS) bonds. A problem the bond trustee appears to be encountering is reaching and purveying information to the 78,000 holders of the bonds.

In spite of the press received by the WPPSS default and the efforts by the trustees to reach and inform bondholders, it appears that, prior to the first missed coupon payment on the WPPSS bonds, many bondholders did not know or did not understand that there was a problem.⁷ Communication technology may facilitate attempts by the trustees to reach bondholders in the future by improving information flows and corporate recordkeeping.

THE EFFECT OF INFORMATION TECHNOLOGY ON LONG-TERM DEBT INSTRUMENTS

Long-term debt is likely to remain a significant part of corporate capital structure. Information

⁷Lynn Asinof, "WPPSS Begins to Cause Pain for Investors," *The Wall Street Journal*, Dec. 28, 1983, p. 15.

technology may change the approach of organizations searching for finance and investors seeking debt instruments as the following impacts of the main advantages of automated systems are felt: increased speed of handling information, more precise and less expensive analysis, and improved communication systems.

Equity

A firm may also decide to gather capital through issuing equity, or ownership rights, in the form of corporate stock. The investor receives with the shares of stock he owns rights proportional to the total amount of stock issued by the corporation. Equity capital strengthens the balance sheet and enhances the future borrowing power of the company. Decisions to issue debt or equity are usually based on what will maximize the market value of the corporation.

From the point of view of potential investors, the purchase of equity may give the opportunity to share in the growth of the company. As some, if not all, of the return received may be in the form of capital gains, the investor may find a tax advantage in equity investments. Equity shareholders may also receive an income stream in the form of dividends as a form of return on their ownership. In some cases, this return may be greater than what would be realized from a debt investment. While tax laws have been subject to change, at times there have been tax advantages from income in the form of dividends rather than interest.

A firm may sell equity in two forms: common stock or preferred stock. The choice will depend on the financial structure and objectives of the corporation and on industry and market conditions. The equity profile of a corporation may be extremely complex. Both common and preferred stocks may be issued, and several varieties of preferred stock may be active simultaneously.

COMMON AND PREFERRED STOCK

Common stock is generally more significant than other types of securities in the capital structure of a firm. The holders of common stock have residual rights to the income of the firm, which they usually receive in the form of dividends. At the same time, the liability of individual shareholders is usually legally limited, particularly for the debts of the corporation. Additional rights of holders of common stock include a claim on company assets in the case of bankruptcy, following the claims of creditors and holders of preferred

stock; the right to maintain their share of ownership through purchase of new shares issued by the corporation; the right to information on the operation of the firm, to the extent that it is competitively feasible; and the right to transfer ownership to another investor.

The most significant benefit for the owner of common stock is the right to maintain control of the corporation through the election of the board of directors, who in turn appoint the officers of the firm and represent the interests of the holders of equity in the firm. The management of the corporation is expected to act in accordance with the goals of the owners and to be accountable to them through the board.

Preferred stock is considered a safer investment because holders of these shares have a claim on the assets of the company before holders of common stock, although after the holders of debt, in the case of bankruptcy. Owning such stock also carries a prior claim to income in the form of dividends. However, the preferred stockholder usually enjoys only limited voting rights, so that he has less impact on the operation of the corporation than do common stockholders.

DIVIDENDS

Depending on the corporation's profits, corporation earnings may be used to pay dividends to stockholders at the behest of the board of directors. Dividends are only declared when the payment will not impair the operation of the firm or legally compromise its contractual relationships.

Two significant dimensions of the dividend policy of a corporation are dividend stability and long-run dividend payout ratio.^a A dividend may be stable in terms of real dollars paid out or in the ratio of dividends to earnings. While the latter may appear more rational, it is rarely used. Consideration of the return expected by stockholders has led most corporations to pay a stable dollar dividend when possible, indicating the importance of income as a motivation for investing in equity issues.

Decisions on long-run dividend payout ratios may be based on the objectives of the owners and management of the firm. The reinvestment of a significant portion of earnings may result in higher growth for the corporation as a whole and maybe attractive to investors desiring long-term income

^aLawrence D. Schall and Charles W. Haley, *Introduction to Financial Management* (New York: McGraw-Hill, Inc., 1980), p. 366.

in the form of capital gains. In this case, earnings are used as a form of internal financing, and any dividend paid is from earnings left over after financing objectives are met. If the shareholders of the corporation are interested in more immediate income, a fixed payout may be used. In this case, the amount of money available for internal financing would differ from year to year as it would be, in a sense, the residual part of earnings.

THE EFFECT OF INFORMATION TECHNOLOGY ON EQUITY

Information technology may be expected to affect equity instruments directly in three areas: the payment of dividends, the recording and proof of ownership, and the transfer of ownership. The transfer of ownership of stock will be examined as a function of the securities industry in a later section.

The improved ability of shareholders to monitor and analyze the activities of corporations more directly through the use of new technologies may also have some impact on individual firms. The magnitude of this impact will largely depend on the characteristics of the ownership of the corporations involved. An increased awareness by the shareholders of the environment and operation of the firm may be a benefit; however, managements and boards of directors may find an increased demand for information dissemination and responsiveness.

Detailed records are maintained on who the corporation's shareholders of record are to assure that they receive their ownership rights. While traditionally this operation was solely paper-based and involved the issuance of certificates that served as proof of ownership, there is some indication that the application of information technology is facilitating a movement toward a book entry system. This type of arrangement is expected to benefit the issuers of equity by lowering operating costs, including those of printing and postage, and to benefit the holders of equity by making it easier to transfer ownership of these securities.

Book entry may require some adjustment by shareholders because the mechanics of proof of ownership will differ. The success of this type of program will depend largely on how apparent and important the benefits involved are to the investor, particularly when trading.

The mechanics of developing a dividend policy may be aided by the application of information technology; however, the value of improvements in communications and computer capabilities is

likely to be most directly felt in the actual paying of dividends. Operation costs for this activity may be expected to decline as recordkeeping and sorting activities can be automated. It may also be possible to use electronic funds transfer for the payment of dividends. While initial costs for this type of system may be high, the resulting efficiencies and the decrease in postage costs may be of great benefit.

Convertible Securities

Preferred stock or bonds that can be converted to common stock at the option of the holder are called convertible securities. Such securities offer a middle ground to investors who demand lower risk than common stock carries yet want to participate in the growth of a corporation.

Convertible bonds offer both interest payments and conversion opportunity. This instrument is attractive for the issuing corporation because generally a lower-than-market rate of interest may be offered, owing to the conversion option. A corporation may view a convertible bond as both a short-run debt and long-run equity issue without the cost of two separate issues. Convertibles are considered deferred common stock financing. These instruments were also traditionally attractive to new or speculative corporations unable to gather equity capital on other terms or to corporations with low-grade credit ratings.

Compared to the issuance of common stock, the issuance of convertible bonds creates less dilution of earning per share at the time the bonds are first offered and at the time of conversion. At the time the bonds are issued, no stock is involved; at conversion, the size of the conversion generally adds fewer shares than a new issue of common stock would. Usually, it is expected that the financial condition of the issuing firm will be improved in both yield and stability at the time of conversion, as indicated by the fact that the conversion price is higher than the market price of the common stock at the time the bond is issued.

The stock package stipulated in the conversion plan may be more favorable to the organization than one designed later when changing market conditions could be taken into account. The expectations of investors for the common stock provision may be less stringent at the time the bonds are issued because of both the benefits to be received before conversion and the anticipation of participating in corporate growth at the time of conversion.

The tax provisions of typical convertible bonds may be beneficial for investors. The conversion of the bond to common stock is considered a tax-free transaction by the Internal Revenue Service. The year-plus-one holding period for long-term capital gains on any subsequent sale of the common stock is counted from the time the bond, not the stock, is issued.

One variation on convertibles that often results from failed takeover bids is the *exchangeable bond*, which can be converted to the stock stipulated in the bond contract of a corporation. This stipulated stock may be issued by someone other than the issuer of the bond. The exchangeable bond requires the investor to evaluate the credit potential of the issuing corporation and the long-range growth and earning potential of the firm whose common stock is involved. Tax provisions must also be a major concern for such an investor.⁸ The Internal Revenue Service considers this conversion to be the equivalent of two cash transactions because the securities of two different corporations are involved. Since the bond would not be redeemed by a rational investor unless the stock sells for more than the original cost of the bond, a taxable gain is realized.

Recently, the interest in this bond instrument by both corporations and investors has grown. While in the past institutional investors dominated this compromise market, individuals are becoming more active. Information technology may be expected to affect convertible instruments to the extent that it makes more sophisticated analysis cost effective for investors and financial intermediaries, and therefore the complex nature of the instrument may be less of a disincentive to potential issuers and investors. Growth in this area may be expected, however, to be related primarily to the fiscal needs of corporations involved and to the demands of consumers.

Short-Term Debt- Money Market Securities

The essential characteristic of money market securities is their liquidity. This derives from their short maturity, by definition less than 1 year, and the generally high quality of the issuing organization.⁹ There are several types of money market

securities and, as the market demands, it is likely that additional instruments will be developed. These short-term debt instruments include Treasury bills, certificates of deposit, commercial paper, bankers' acceptances, and repurchase agreements. They are important to corporations in money management as both financing tools and investment tools.

A *Treasury bill* is a short-term debt of the U.S. Government. The bills are sold on an auction basis at a discount from face value. Since the U.S. Government is continually borrowing to pay off debts, Treasury bills are issued on a very frequent basis. Biddings are closed by the U.S. Treasury weekly for 91- and 182-day debt issues and monthly for 9- and 12-month bills. Short maturities and the backing of the U.S. Government make them desirable investments.

Although the market is quite short-term, an active secondary market has developed. Therefore, bills can be traded before the maturity date, adding to their liquidity. Treasury bills are a desirable short-term investment tool for corporate investors because of the high level of liquidity and low level of risk they carry.

Commercial paper is a short-term debt issued by finance companies and some other corporations. Interest rates for commercial paper are generally higher than for Treasury bills because of the risk factors involved in private firms. Many companies use commercial paper to supplement bank loans. In general, it is a less expensive method of financing for prime quality obligatory than loans (because banks are not used as intermediaries) and may fill a need at a time when the issuance of long-term debt is not appropriate. The issuance of commercial paper lacks the supportive, interactive nature of a relationship between a corporation and a commercial bank.

Commercial paper may be sold directly by the issuing corporation or through a dealer. Since dealers screen the instruments to a certain extent, commercial paper placed by a dealer may be less risky for an investor, although commercial paper directly placed by some major corporations is of very high quality. The investor holds an unsecured short-term promissory note as evidence of the debt, and the instrument is tradable in money markets.

Commercial paper is designed to avoid a requirement of registration with the SEC. Because of past problems in commercial paper markets—specifically, those generated by the bankruptcy of Penn Central—investors have caused the market to

⁸"Investing in Convertible Bonds," *Business Week*, June 20, 1983, p. 191.

⁹Roland I. Robinson and Dwayne Wrightsman, *Financial Markets: The Accumulation and Allocation of Wealth* (New York: McGraw-Hill, Inc. 1974), p. 147.

become quite conservative. Commercial paper of companies that do not have a very high financial reputation is rarely marketable.

Banker's *acceptances*, which originated at about the same time as international trading, continue to play a significant role in importing and exporting. A banker's acceptance is issued by a corporation and guaranteed by a commercial bank. The acceptance is a liability of the bank and is traded in money markets based on the reputation and credit standing of the bank. The instruments are of value in international trade, owing to the time-lags that can occur because of the physical aspects of transporting goods and because of the uncertainty with which many traders approach foreign markets.

Certificates of deposit are negotiable securities issued by commercial banks. They have fixed maturities and pay interest to maturity. Yields on certificates of deposit are higher than for Treasury bills and are paid at the time the certificate matures. The risk associated is dependent on the quality of the issuing bank. Certificates can be traded in a secondary market before maturity; this market is particularly active for the certificates of deposit issued by major commercial banks.

Repurchase *agreements* stipulate that the short-term securities sold will be repurchased by the seller. They are frequently issued by bond dealers to finance inventories. U.S. Government securities are the usual basis for the agreement through which an investor "purchases" the securities while agreeing to resell them at a specified time and price. The term of repurchase agreements may be for several months or for overnight, and therefore has the potential to offer a great deal of flexibility.

Major questions involving repurchase agreements center on the level of risk involved and how the transaction should be classified. Historically, repurchase agreements were considered extremely safe transactions, although they are not federally insured, because they involve Government securities and are handled by recognized players in the financial service industry. However, recent collapses of dealers caused some investors to experience high losses.

The qualification of repurchase agreements as a sale or debt has created some controversy throughout the financial service industry. The Internal Revenue Service has held that it is a collateralized debt, and therefore the investor would be liable for interest income received. Dealers in Government securities sales disagree and consider the instrument to be a purchase/sale agreement.

Congressional action is expected to confirm this stance.¹¹

The short-term debt market has been greatly affected by the use of information technology. The nature of some short-term debt includes a definite end-date for the instruments. Improvements in sorting and transacting brought about by computer capabilities may extend the effective lifecycle of the instrument since it can be marketed more quickly. The availability of better data and the improved ability to analyze information about the debt instrument and about the issuing organization may affect the market for short-term debt instruments. The potential of short-term debt instruments as investment tools may be expected to improve to the extent that the application of technology will refine this evaluative process.

Information technology may also improve the packaging of short-term debt instruments by allowing securities industry marketers to match better the characteristics of various instruments to the demands of investors. The proliferation of money market mutual funds and demand accounts may be a result of this opportunity.

Options and Futures Contracts

The capital market investor's investment goals may not be completely met by debt and equity issues. The desire of investors to increase their liquidity or return or to limit risk has led to the development of instruments that comprise what may be considered a second-tier securities market. These securities are based on the fortunes and fluctuations of capital markets, but are not essential to the capital structure of individual firms.

Off-shoot investment products include options on stocks and bonds and futures contracts on commodities, currencies, and market indices. These instruments are all based on the market behavior of underlying products or securities. The interest of the investor is focused on the price fluctuations of the product, usually in a relatively short time frame, rather than on the intrinsic operations of the firm. Interest in options and futures contracts investment has led to the development of an industry structure specializing in these products, including exchanges and clearing corporations. The development of this structure has increased interest in the products and has led to further growth in option and future contracts trading.

¹¹"The Repo Market Is Still in Shock," *Business Week*, Apr. 4, 1983, p. 74.

Options

Options provide a method of participating in a securities market without ownership of actual debt or equity instruments. An option is a tradable instrument that grants an investor the right to buy (a *call* option) or the right to sell (a *put* option) a specific security at a given price for a limited amount of time. It is a legal contract in which two factors are explicitly stated: the expiration date and the exercise price. The value of an option is directly related to the market price of the underlying security. The exercise price of an option indicates the change anticipated in the market. The exercise price of a call option (at which the investor can buy the underlying security) is, at the time the option is issued, generally higher than the market price of the security. Conversely, the exercise price of a put option, which entitles the holder to sell the security, is generally lower than the market price. Options may be written and sold for real estate, debt instruments, and foreign currencies; they have recently become most significant in equity markets.

Options are “wasting assets”; that is, after the specified expiration date, they have no value. Therefore, the timing of market changes, as well as direction, must be correctly evaluated by the investor to assure that the potential value of the investment is realized. The writer of an option, except for warrants, which are discussed below, is not controlled by the organization named in the underlying security. More shares of stock may be represented collectively through outstanding options than have been issued by the corporation. While option writing and buying may be part of a complex investment portfolio that includes debt and equity instruments of an institution, the operations of option markets are, in a practical sense at least, totally separate from the capital structure of a corporation.

While options have been traded among individuals for many years, the market has grown and become more sophisticated since the organization of regulated exchanges in the mid-1970's. The trading of options entails a relatively new market structure; therefore, the influence of information technology on this structure is quite visible. For example, options use book entry rather than certificates as proof of ownership.

PARTICIPATING IN THE OPTIONS MARKET

Participants in options markets attempt to profit from their knowledge of the potential declines and rises of a corporation but have no direct stake in its operations. In the basic options market, players may be involved in four activities: buying call options, buying put options, writing call options, or writing put options.

An option buyer hopes to profit from or protect himself from a change in the price of the underlying security. The holder of a call option has the right to buy a security at a specified price. This investor may do three things with this right: exercise it by buying the underlying securities, sell it to another investor, or let it expire. He has no legal obligation to make any transaction of the underlying security. Further action on his part involving the contract is self-motivated and will result only from his evaluation of the market.

The writer, on the other hand, is obligated to buy or sell the underlying security under the conditions specified in the contract. His continued involvement with the instrument is not voluntary and, while in some cases may not be required, is legally enforceable. Both writers and buyers of options can liquidate their positions by purchasing off-setting options before the expiration or exercise of the option.

The motivation of an investor to buy a call option may be related to two separate strategies. He may hope to participate in the benefits of a rise in stock prices with a limited current investment and therefore may buy call options to achieve leverage or establish a future price at which he plans to purchase the security. He may also be motivated to purchase call options to limit risk, either as part of a conservative overall investment strategy or to hedge a short stock position.

For the individual investor, leverage may be measured through the percentage of total assets necessary to invest for a given rate of return. It is assumed that the financial assets of an individual are finite and that each investment decision is evaluated by its opportunity cost. Achieving leverage could be the motivation for buying call options for an investor who expected the price of an issue to rise. The cost of buying a call option for a given number of shares of stock represents a much smaller investment than does the purchase

of the shares. A higher percentage of return on investment may result in the case of a rise in the price of the stock to the holder of a call option. However, it must be recognized that with a highly leveraged investment, a larger share of the investment may be lost. Since options are wasting assets, the investor must be correct in his evaluation of the timing as well as the likelihood of a price increase in order to profit from his purchase of options. If the option expires without being exercised, the investor's loss would be equal to his investment. Absolute return or loss will usually be lower for the option investor than if he held the equivalent number of shares of stock.

Options are also bought by investors who would like to invest in the underlying security and expect its price to rise but who do not have the cash to make the investment. The call option establishes a guaranteed maximum price for the security. This strategy is particularly useful if the investor anticipates receiving a flow of cash before the expiration of the option. If the price of the stock falls below the exercise price, the investor may purchase the security at the market price and consider the option a sunk cost.

While investment in options increases the leverage and establishes the price of future stock for the investor, the lower dollar investment required to buy call options rather than stock limits absolute risk, since the investor exposes less of his assets to the market. A common, conservative investment strategy is to purchase call options and invest the difference between the options and the price of the underlying security in a low-risk instrument, such as Treasury bills. Any loss incurred through the options investment would be at least partially off-set by the interest earned on the investment of the remainder.

Decreasing risk may also motivate an investor to purchase call options if he maintains an extremely risky position in equity markets by selling short, that is, selling securities he does not own in anticipation of a price decline. This investor theoretically exposes himself to unlimited loss if the price of the stock increases because he would be forced to pay market prices to deliver the securities. By buying call options, the investor who takes a short position establishes his maximum purchase price for the securities he is selling and therefore insures himself against limitless loss. Of course, if the market behaves in the manner anticipated by the short seller, the price of the option is lost profit.

While the buyer of call options generally acts in anticipation of increases in the price of the underlying security, the buyer of put options attempts to profit from or limit risk if the price declines. The option grants the holder the right to sell at an established price, and therefore it can be used for leverage and for limiting risk. As with call options, the investor must have correctly analyzed the direction of the price change and the timing of the change in order to profit.

The conservative investor can use put options as a hedge against a substantial decline in the price of a stock he holds. This strategy may be particularly attractive as protection for an individual who has a significant portion of his assets invested in a single security. However, it must be recognized that the insurance provided only lasts through the life of the option and that the cost of the option cuts into the investor's potential profits.

The writer of an option exposes himself to far greater risk than the buyer does. A writer of call options may be required to sell the underlying security to a holder at the exercise price at any time during the life of the option. Conversely, the writer of a put option may be required to buy the underlying security from the holder at any time during the contract.

The writer of call options is motivated by the possibility of gaining a return through premium income. Calls may be covered, wherein the writer owns the specified underlying security, or uncovered, wherein the writer would be required to purchase the security at market cost if he is assigned an exercise. Leverage for an investment portfolio may be the most significant motivating factor for the writer of covered calls. Return from the underlying security may be realized both through dividends or interest paid and through income received from premiums. While the covered call writer may hope to maintain his position in the underlying security, option writing may greatly increase his income-producing potential.

The writer of uncovered calls is the player at most risk in the options market. His potential loss may equal the market price of the stock less the sum of the exercise price and premium received for the option and, in theory, is limitless. The uncovered call writer must be extremely sensitive to any factors in the economy at large or for the corporation that may cause a significant price increase.

A writer of put options is obligated to buy the specified underlying security at the exercise price

at any time until the option expires. The put writer must have sufficient liquid assets to buy the security and, as an exercise is only likely when the exercise price is higher than the market price, he must anticipate paying more than the value of the security. The option writer who trades through an exchange is required to deposit cash or securities, referred to as margin, with a brokerage firm. Puts may, alternatively, be secured with cash equal to the option exercise price. No additional margin requirements will be required in this case, and interest may be earned by the writer on the cash deposited.

Investors are usually motivated to write puts by a desire to earn income from premiums, the price paid by the buyer of an option to the writer of that option. The opportunity to purchase the specified securities may also be a motivating factor in some cases. In a stable or rising market, it is possible to earn premium income with relatively low risk; however, demand for put options may be expected to be fairly low in this circumstance. Some put *writers* hope to acquire the stock at a net cost which, considering premium income, is less than the current value of the stock.

The four possible ways of participating in the options market may be combined by an investor to form a strategy he believes is most likely to meet his investment goals of producing income or limiting risk. The options tactics chosen are influenced by the investor's expectations about how the price of the underlying security is likely to change in direction and magnitude.

Spreads and straddles are the two most common multiple-options investment strategies. Spreads are used to limit risk in option transactions and involve writing and buying the same type of option, calls or puts, for the same specified security. The options generally have different expiration dates or exercise prices. If the investor were assigned an exercise for the option he wrote, the spread benefits would disappear, and his risk position would be drastically changed. The writer of spreads generally anticipates little change in the price of the underlying security. A stable market provides his best opportunity for profit.

The investor who anticipates a great change in the price of an underlying security but is unsure of the direction or magnitude may maintain a straddle position. The straddler either writes or buys both a call and a put option for the same security. Both the call and the put should have the same exercise prices and expiration dates. Buying straddles has limited risk because maximum loss

equals the premium price and, theoretically, unlimited profit potential. However, the price change must be significant in order for the investor to profit, and the investor must be correct in his evaluation of the timing of the change. Straddle writers are generally motivated by their belief that there will be little, if any, change in the price of the security and, therefore, that if an exercise were assigned, profit from premium income would insure a net profit after costs of satisfying the exercise conditions. Risk for straddle writers is limitless, as a substantial loss can be incurred on both positions if the market price for the security fluctuates more than expected.

PRICING OF OPTIONS

The premium (i.e., price) of an option is subject to change and is influenced by characteristics of the option, the underlying security, and general economic conditions. Factors influencing the premium include the expiration date of the actual instrument, the price and volatility of the underlying security, supply and demand effects on the option market for the specific security, and, on the whole as well, interest rates. The premium for an option is comprised of intrinsic value and time value. An option has intrinsic value any time the difference between the exercise price of the option and the market price of the security works to the advantage of the holder. Anytime this is not the case, the option has no intrinsic value, and the premium is based only on time value.

Time value represents an evaluation by an investor of the potential of the option to increase in value owing to a change in the price of the underlying security prior to expiration of the option. Time value may generally be expected to decline as the expiration date approaches and as the possibility of fluctuation in the security price decreases. It is also influenced by the amount of difference between the exercise price and the market price of the underlying security. A large difference may result in a decrease in time value because the possibility of profitably exercising or selling of the option is more remote. Increasing interest rates generally result in increases in time value.

Warrants

A warrant is unique because it is issued by the corporation that issues the underlying security and, as such, is part of the capital structure of the firm. A warrant is a type of call option that grants the holder the right to purchase company stock

at a stated price, usually somewhat above market at the time of issue. The value of the warrant itself at any time is dependent on the current price of the stock of the issuing corporation. Warrants are often offered with debt issues by corporations to make the debt issues more attractive to potential investors. They offer a participation right of sorts if the corporation grows. The investor benefits from the fixed return of the debt investment as well as the opportunity to purchase stock at an established price.

As with all options, an exercise price is specified for the warrant. It may have a specific expiration date or be perpetual. The contract also specifies whether it can be traded, as with other option instruments, or be exercised only by the holder.

Unlike other options, warrants directly affect the capital structure of a corporation. A call or put option is exercised through a capital market and with no net change in the number of shares outstanding for the corporation. However, when a warrant is exercised, the corporation issues new shares of stock; therefore, the earnings of the company, from the point of view of the shareholders, are diluted. This situation complicates valuation both of the stock of the corporation and of the warrant.

THE EFFECT OF INFORMATION TECHNOLOGY ON OPTIONS

Information technology is likely to continue to facilitate the development and trading of options. Because option markets have only recently become highly structured and have been heavily dependent on technology from their inception, the continuing application of communications and computer technologies in these markets is not likely to lead to major revisions in ways of doing business to the same extent as they have in debt and equity markets. Options may serve as a testing ground of sorts for new technologies, and technology use in this area may presage future applications throughout the securities industry.

The use of personal computers and sophisticated communications technologies may spur the development and marketing of option contracts by individuals and may lessen the role of brokers in bringing writers and buyers together. Information technology should also facilitate the monitoring of option markets by investors, brokers, corporations issuing securities on which options are written, and market observers and regulators. This may become increasingly important as the use of options as an investment instrument grows.

Futures

Futures, or future contracts, are legally binding agreements that call for the purchase or sale of real or hypothetical items at a stated price at some time in the future. Future contracts can be developed for anything and are traded on established exchanges for physical commodities such as pork bellies and coffee, for financial instruments, and for hypothetical stock portfolios.

Even though future markets at one time were focused only on commodities; they have expanded greatly. In the past, communities needed to be self-sufficient in their production of foodstuffs and other necessary goods because transportation between regions was not efficient. As lack of transportation became less of a barrier to trade, commodities markets developed that allowed for specialization in production and made a wider assortment of goods available. Centralized commodity markets made more extensive trading possible, and future markets grew from them to address price-change risks.

Commodity futures markets developed because of the need in both agricultural and industrial societies to minimize the potential impact of unknown and hard-to-predict forces that influence the price and availability of resources and products. For example, through the use of futures contracts, food processors are able to set definite maximum prices for the commodities they will need for production throughout the entire year. Most crops are only harvestable for a very short period of time in any year, and it is desirable for farmers to be able to sell all of the harvest at that time to avoid the need for expensive storage. While the demand for some food products, such as turkey and pumpkins, may be seasonal, food processors face a year-round demand for products made from commodities only available for a very short time. These processors need to have the commodity available at a predictable price when it is needed. By providing a reliable means to conduct future buying and selling, futures markets have served to equalize the marketing of most seasonal farm crops. 12

The development of futures markets centered around the desire to transfer risk. The play of the market attracts a large quantity of risk capital through which changes in commodity price levels can be absorbed with only a minimum direct impact on producers and processors of commodities.

¹²Future Industry Association, "Development of Commodity Exchanges," *Futures Trading Course and Handbook*, Washington, D. C.: 1983, p. 1-4.

This allows the producers and processors to operate at lower cost than would be possible if they had to bear the entire risk of market fluctuations. In turn, this lowers prices to the public.”

Commodity futures markets help effect stability in consumer prices. Because food processors can bound their costs, consumers are assured that products will be available when needed at a relatively predictable price and therefore approach the market in rational manner. This price stability is both of importance to the general economy of the Nation and of social interest, since allocations through Government programs, such as food stamps, can be set with some certainty as to what market conditions will be for the recipients.

THE OPERATIONS OF FUTURES

The taking of a position in future contracts for a product on which one depends in one's primary economic activity is called hedging. For example, General Foods might be expected to hold a position in coffee futures contracts to guarantee the maximum price it would need to pay for beans for future production. In the discussion of futures, hedging is not a speculative strategy but rather refers only to the activities of players who face risk because of possible fluctuations in price and availability of an actual commodity.

STOCK FUTURES

Options, which were discussed in an earlier section, allow for the transfer of risk associated with a particular debt or equity issue. Broad changes in the stock market prices pose a blanket risk to highly diversified investors, and stock futures may offer inherent price change protection to these investors. Stock futures are contracts that call for the buying or selling of a mythical basket of stocks, usually a grouping which is used in an index of market behavior. Due to practical limitations, these futures are settled through cash rather than the actual purchase or sale of the underlying securities.

The availability of stock futures through which an investor can hedge against swings that affect the entire stock market may add a great deal of stability to that market and is expected to be of great significance to institutional investors, who hold a growing proportion of all shares. Investors may be more judicious in their response to market changes because their risk may be minimized by the holding of offsetting positions in stock

futures, and therefore the stock market may become less volatile.

If the stock market becomes less volatile, it must be expected that funds currently held in mutual funds or the savings instruments of depository institutions because of the desire of the investor for stability will be transferred to direct participation in capital markets. More money may be available for corporate capital formation; however, this may be at the expense of the banking structure.

Questions that must be addressed are: what happens to the risk that is transferred away from the stock market? and what effect will this transfer have on the market? The result may be that the assumers of risk, in this case players in stock futures, may be expected to be advised better and more able to accept this position.

One cannot blindly accept that risk was bad for the stock market when, in fact, it was the market's reason for being. It is essential that some means of projecting what the impact of the possible end of the need for a risk-accepting role by stock exchanges will mean to the process of capital formation be available. It is also necessary to determine what, if any, effect the activities of markets in stock futures will have on the inherent soundness of capital markets. Stock futures may cushion the stock market from changes in the general economy; however, it is not clear what impact a catastrophic event in the futures market might have on the entire capital formation process.

THE EFFECT OF INFORMATION TECHNOLOGY ON FUTURES

Futures markets provide a glimpse of what the possible impacts of information technology on the securities industry as a whole may be. The potential of information technology was available as many of the operations of this segment of the industry were developed.

Modern futures markets need both man and machine to operate. Human decisionmaking has been and will continue to be the one irreplaceable and essential characteristic of any successful market. However, the volume of trading demanded by current market conditions requires a level of operations not feasible for mortals in a free society at an acceptable cost. It would be impossible to operate futures markets with the precision and at the volume demanded by the market without the application of information technology; for example, for performing simple tasks, such as sorting faster, that would be impossible for a human work force.

¹³Ibid.

Computer and communications technology did generate a futures market; however, if these technologies were not available, the market could not have grown to its current size and importance. Its absence would have effectively foreclosed the possibility of responding to the demands of the economy for the level and quality of operations now seen.

Mutual Funds

The importance of mutual funds as institutional investors is discussed earlier in this report; however, these funds also have a role in the securities industry in the role of investment instruments.

Mutual funds offer investors a way of participating in securities markets without directly purchasing capital or money market securities. An investor may be attracted to a mutual fund as a sort of proxy method of participating in the securities market. The individual benefits from the expertise of the fund management, and risk is generally lower than that through direct participation, although actual risk differs significantly, based on the investment strategy of the fund. Mutual funds allow investors greater liquidity than capital markets; shares are redeemable at any time at current asset value less applicable redemption fees.

Mutual funds have traditionally been especially important for the small investor because they can frequently be entered with a smaller amount of investment capital than can the securities market, as the money invested is pooled with that from other participants. The investor may also take advantage of the possible benefits of a diversified portfolio that he might not have been able to support by directly participating in capital or money markets. For the investor interested in an entire industry rather than a specific company, certain funds allow such a focusing of investments.

Mutual funds that are made up of corporate bonds and stocks are significant to the formation of capital because they attract investment money to the market that would not otherwise have been available. While some mutual funds centered on capital markets have charged high transaction fees (called a load), their availability has increased both consumer options and competition for investment dollars throughout the financial service industry. The application of information technology to the development and marketing of mutual funds should increase the number and variety of funds available to consumers.

Money market mutual funds are one of the more liquid instruments available to investors. The liquidity of this type of investment is demonstrated by the fact that, in many cases, shareholders may access their funds by writing drafts, as quickly as a bank checking account by requesting wire transfers, or in some cases, by using an automated teller machine (ATM).

Such funds invest in short-term money market securities and, because of the nature of the underlying securities, are extremely liquid and relatively risk-free. Money market mutual funds are a valuable cash management instrument for businesses and an extremely valuable tool for individual investors, both the "small" and the more affluent.

Money market mutual funds give investors access to money market securities on terms that they could not likely match themselves. Economies found in issuing and servicing large-denomination money market securities result in higher yields than those offered on similar securities of smaller denomination. "The holder of shares in a money market mutual fund benefits from this higher rate of return.

Money market mutual funds have enjoyed major market success. While information technology is not directly responsible for this, many industry experts believe that it would not have been possible, from an operational or business point of view, to introduce this type of fund without the support of communication and computer technologies. Information technology makes it possible to retain the highly liquid character of the funds by simplifying access for the investor. The level of trading in short-term securities required by the funds would be difficult to complete physically without the assistance of information technology.

The number and variety of capital and money market mutual funds will probably continue to grow. While this growth will provide more options for investors, it may also have an impact on the way in which securities markets operate. Although information on the investments of the fund is included in prospectuses and periodic reports to shareholders, it is not clear that the individuals investing in the fund take an active interest in what instruments their money is invested in. While the pool effectively lowers risk, the responsiveness of individual shareholders is markedly lower than

¹William Jackson, "Money Market Mutual Funds," Congressional Research Service Issue Brief No. 81057, Jan. 20, 1983.

would be expected in normal market circumstances. The institutional investor behaves differently, for better or worse, because he makes decisions differently, and this may have an impact on securities markets.

Central Asset Accounts

The central asset account is considered by many to be the single most important investment product of the next decade.¹⁵ In developing the market-leading Cash Management Account, Merrill Lynch recognized that the financial needs of a single customer are interrelated and form well-defined types of systems. The central asset account attempts to meet an investor's full range of financial needs with three basic components: the securities margin account, the money market fund account, and a zero-balance bank loan account that can be accessed by check or card. A central asset account provides a full range of financial services to its user. The accounts offer a centralized method of controlling assets and, as free credit balances in the zero-balance account are "swept" into a money market fund, both liquidity and return are maximized for the investor.

Nearly all major securities firms offer a central asset account. While they have the same basic components, their features often differ. Among the

features that distinguish accounts are: how frequently "sweeps" of free credit balances occur, whether a charge or debit card is issued for access, the offering of excess insurance coverage; whether the account is accessible through an ATM network, and the availability of a bank overdraft line of credit.¹⁷ The accounts have been targeted toward the upscale market, an estimated 10 to 12 percent of the population. A substantial minimum opening deposit of securities or cash, usually of between \$15,000 and \$20,000, is required and an annual fee is charged.

Merrill Lynch first offered the Cash Management Account in 1977 and as market leader now has nearly 1 million accounts. The market growth that central asset accounts experienced may have been attributable in part to market conditions, especially high interest rates. As conditions have changed, the growth of these accounts has declined.¹⁸ The significance of the account in the long run is difficult to judge, although it seems likely that it will continue to serve the needs of a segment of the market. One important feature of a central asset account is that it allows brokers to fill more of their customers' financial needs for more of their personal financial lifecycle.¹⁹ This makes the account a valuable tool for financial service offerers, as it may help to attract and retain customers.

¹⁵*The Financial Services Industry of Tomorrow*, a report prepared by the Committee to Examine the Future Structure of the Securities Industry, National Association of Securities Dealers, November 1982, p. 20.

¹⁶Herbert M Allison, Jr., "The Perspective of a Diversified Financial Services Company," panel presentation at the Eighth Annual Conference of the Federal Home Loan Bank of San Francisco, *Strategic Planning for Economic and Technological Change in the Financial Services Industry*, San Francisco, Calif., Dec. 9-10, 1982, p. 157.

¹⁷Joseph Diamond, "Central Asset Accounts Developed by the Securities Industries," *Financial Services Institute Handbook*, vol. 1, p. 358; prepared for distribution at the Practising Law Institute Financial Services Institute Program, Feb. 14-15, 1983.

¹⁸Alice Arvan, "Asset Accounts Reach Out for Broader Markets," *American Banker*, May 20, 1983, p. 9.

¹⁹William L. White, "The Outlook for Money Market Mutual Funds," a report to the Investment Company Institute, Sept. 30, 1982, p. 62.

Appendix 3B: Capital Formation and the Functions of the Securities Industry

The securities industry performs its functions of advising, underwriting; and marketing to gather capital by bringing investors and organizations in need of capital together in two ways: through private sources and through public offerings. Financial advisors may assist the firm in determining which path to follow. The characteristics of the

firm, its size, management style, and financial history, as well as the amount of capital needed and market conditions, all contribute to the decision on whether to attempt to finance through private or public offerings. An overview of the role the securities industry plays in both private and public financing is provided below,

Private Sources of Funds

Seeking capital through private sources may offer salient advantages for many corporations. Regulatory requirements associated with public issues are avoided. This may save time and, more importantly, the avoidance of disclosure requirements may be an advantage for many firms, particularly those in highly competitive industries. However, because the firm is only likely to approach a limited number of investors and because the assurances associated with a regulated public offering may not be found in private financing, the firm may find it necessary to pay a higher rate of interest or return on money obtained and may find that the creditor or holder of equity has a greater interest in the operations of the firm than investors in public issues.

Private Placements

A corporation may sell an entire issue of securities directly to a single investor or small group of investors. Such an action is referred to as a private or direct placement and may involve either debt or equity issues, although more commonly, debt instruments are involved. Private placement offers several advantages over a public offering for the issuing firm. It is generally quicker and cheaper, as registration of the issue with the SEC is not needed, and the firm deals either directly with the potential investor through a placement agent. The issue may also be more directly tailored both to the needs of the borrower and the investor in the terms outlined and in the timing of the issue.

A potential disadvantage of this type of offering may be mitigated by the application of information technology; that is, the location of suitable potential investors in a time frame that allows the capital seeker to plan the use of the funds with some precision. Communications technologies may streamline brokerage private offerings.

Privileged Subscription Basis

An offering of stock only to existing stockholders is termed a privileged subscription, or rights, offering. In many cases equity holders are granted a preemptive right in the articles of incorporation of the company that requires the firm to give current shareholders the opportunity to maintain their "position," that is, percent share of total ownership, any time a new issue is made. In this situation each shareholder is issued one right for each share of stock owned. The number of rights

needed to purchase new shares are specified in the offering; however, the shareholder is assured that he will be able to purchase new shares in proportion to his current stake.

A privileged subscription may provide basic marketing advantages to the issuing corporation and therefore to the shareholders, even those who opt not to purchase additional shares. The targeted market for the offering is known to have an interest. Assumed knowledge of the corporation and the costs associated with the offering are usually lower than they would be for an offering to the general public. Often, flotation costs are half those of a public issue. From the point of view of the investor, margin requirements for a purchase through a rights offering are generally lower than in other circumstances.

The corporation may identify two major disadvantages with a rights offering. First, to attract investors, the price per share may have to be lower than would be assigned in a public issue. As a lower total amount of capital may be raised by the issue, earnings per share may be diluted. Second, the increased number of actual shareholders resulting from a public offering may be desirable for the corporation. The greater the number of stockholders, the more likely that management will retain control of the operations of the company.

Venture Capital

Venture capital is money invested in new or small businesses by corporations or individuals that are not directly involved in the management of the business, although they may provide advice. The investor is usually granted a large enough share of equity in the venture to exercise significant control of the corporation and, in cases where the venture is successful, to receive a significant return. The equity is frequently issued in the form of letter stock, a private placement that cannot be resold until the issue is registered with the SEC, which may be years later.

Although it may be an extremely risky investment, individuals who are venture capitalists are attracted for several reasons. Not only is the rate of return significantly higher, but as it is in the form of capital gains rather than dividends, it is taxed at a lower rate. Organizations that provide venture capital are part of many corporate families, not only because of their primary goal of financial returns but also because of other tangible business benefits the venture capital relationship can provide. Several investment banks have formed

Table 3A-I.— Most Active Venture Capitalists, 1982

Rank	Name of firm	1982 total investment (in millions)	1981 rank
1.	The Hillman Co.,	101.5	1
2.	Allstate Insurance Co. Venture Capital Division	64.2	9
3.	First Chicago Investment Corp.	48.5	2
4.	General Electric Venture Capital Corp. (G. E. Corp.)	41.6	27
5.	Brentwood Associates	35	10
6.	E. M. Warburg Pincus & Co.	33.9	12
7.	TA Associates (Tucker Anthony & R. L. Day)	32.3	4
8.	Security Pacific Capital Corp.	32.25	8
9.	Citicorp Venture Capital Ltd.	30.5	3
10.	BT Capital Corp. (Bankers Trust N.Y.)	26	45

SOURCE *Venture* June 1983

venture capital units in the hope of handling eventual public issues if the company experiences hoped-for growth. The desire to attract and retain customers is an incentive also for commercial banks and insurance companies.

Some major corporations, particularly in the energy and electronics fields, have formed venture capital units because of interest in financial return and the hope of gaining access to new ideas and technology that may be beneficial to the corporation. The need of established industrial giants to maintain the pace of technological innovation may encourage further entry into the venture capital market.

For a small or new corporation, venture capitalists may provide a valuable source of financing. Intermediaries in the securities industry provide assistance to this capital seeker. They help locate a potential investor whose objectives are in line with those of the organization in need of financing and assure that the financial arrangement developed is in the best interests of the firm in both the long and short runs.

Venture capital has become more plentiful in the past several years. Industry experts attribute this to changes in Federal Government policies that reduced capital gains tax in 1978 and 1981 and relaxed pension trust fund investment rules in 1979.¹ Information technology may have an impact on venture capital financing because it may facilitate analysis of possible deals. New communication capabilities may also make it easier for prospective

venture capitalists and the seekers of financing to locate one another.

An important source of venture capital for small businesses are *Small Business Investment Corporations* (SBICs). These firms are licensed and regulated by the Small Business Administration under a program established by the Small Business Investment Act of 1958 to contribute to the development of small businesses. SBICs are privately owned and operated investment firms, but are eligible to receive some Federal funding. Capital is developed in the form of equity or long-term loans.

These firms are an important part of the capital formation process for small businesses that might be at a disadvantage in competing for venture capital. Information technology may be expected to facilitate the development of financing between SBICs and businesses by making it easier for both to identify potential investment arrangements.

Public Offerings of Securities of a Corporation

The decision by the management of a privately held corporation to "go public" is based on their objectives and strategies for the future of that business. The desire to acquire capital, to increase the liquidity of the original owners, and to strengthen the balance sheet of the corporation must be weighed against the expense involved in such a move, the increased vulnerability of the corporation to general market conditions, and the necessity that management take on additional responsibility for the actions of the corporation and, possibly, relinquish control of it.

There is no strict formula through which the decision to go public can be made. Going public may involve a significant change in the structure and operation of a firm, and this change must be assessed in terms of the objectives of the owners and management of the company. The decision cannot be assessed individually; it must be considered in light of other alternatives such as private funding or additional investment by the owners. In evaluating the option of going public, several matters must be considered; these include business, accounting, legal, and regulatory considerations.

Careful attention must be paid to the planning of an offering to assure that the normal operation of the firm is not disrupted and that maximum value is derived from the offering. Major factors to be considered by the corporation include timing of the issue, both in terms of the operations

¹U.S. General Accounting office, *Government-Industry Cooperation Can Enhance The Venture Capital Process*, Report to Senator Lloyd Bentsen, Joint Economic Committee, Aug 12, 1982, p. 4.

of the company and of investment markets; the ability of the firm to attract an underwriter, if needed; and the ability and desire of the corporation to adhere to disclosure requirements. Information technology may ease these problems by aiding in the analysis of decision factors and possibly by shortening the issue process and therefore the disruption of business.

Federal laws governing public offerings by corporations or organizations require the disclosure of information on which investment decisions can be based. A prospectus is information provided to potential investors in a new securities issue that describes the current condition and history of the issuing firm. It attempts to provide information on which a decision to invest can be made but does not contain any type of objective judgment on the advisability of investing in the described issue.

Information technology may affect public offerings by corporations in several ways. First, the essential requirement of Federal securities laws is the provision of information to potential investors. It is quite likely that the application of information technology for disseminating information will radically change the physical activity of going public. Paper was the logical medium through which information could be transmitted in the 1930's, when many of the currently applicable securities

laws were enacted.² It was cheaper and more reliable than the communications technologies of the day, notably telephone and radio, and was easier to use.

Paper was never intended to be a sacred medium for conveying information about securities offerings. Its use was specified because it was the most practical choice. The vast improvement in quality and cost of information technology has turned the table on the comparative effectiveness of paper and communications media. Recognition of this change is causing a reexamination of the process of filing new offerings with the SEC.

The SEC is trying to make the volumes of information it receives easier to manage and use by applying information technology to its information gathering and dissemination process. Some experts advocate the eventual movement toward paperless filing and information dissemination. Potentially, a system based on information technology could result in faster dissemination of information and more efficient review and storage processes.

Lee B. Spencer, Jr., "The Electric Library," Remarks to the American Bar Association, Federal Regulation of Securities Committee, Nov. 19, 1982.