

Controlling the Market for Corporate Control: The Historical Significance of Managerial Capitalism

William Lazonick

Financial Commitment and Innovation

What mode of corporate governance can best enable U.S. industrial enterprises to create value and contribute to national economic prosperity? During the 1980s, amid dramatic changes in the financial structures of major U.S. industrial corporations, **many economists extolled the “value-creating” virtues** of “the market for corporate control”—the exercise of **control over the disposition of corporate assets and revenues by means of financial claims acquired through the medium of public securities markets.** ¹ A willingness to rely on the market for corporate control to determine the **investment strategies** of industrial corporations is consistent with the market-oriented ideology of mainstream economics. But, as I shall argue here, the belief in the efficacy of the market for corporate control is inconsistent with the history of successful capitalist development in the United States and **abroad over the past century.**² The history of successful capitalist development, marked by **changing international industrial leadership**, shows that **value-creating investment strategies** increasingly require that business organizations exercise control over, rather than be controlled by, the market for corporate **control.**

My arguments may be counterintuitive to economists **trained to believe** that superior economic performance is secured by market coordination rather than organizational (or planned) coordination of **economic activity.** For conventional economists, the **“efficient” economy is one in which free markets in labor and capital permit the reallocation of factors of production to their “optimal” uses.** From this perspective, any impediments to the “optimal” allocation of scarce resources to alternative **uses—at any time and also over time** as more efficient uses appear—are deemed to be “market **imperfections.”**

1. See Jensen 1988; Jarell, Brinkley, and Netter 1988.

2. See Lazonick 1991.

The basic problem with this market-oriented perspective is that it contains no theory of the *genemtion* of more *efficient* uses of productive resources over time. This criticism is not novel. Joseph A. Schumpeter made it almost a half-century ago (1950).³ The mainstream of the U.S. economics profession, satisfied perhaps with U.S. international dominance of the world economy in the post-World War II decades, just swept the criticism under an intellectual rug, tightly woven with mathematics, statistical techniques, and general equilibrium theory. Now that U.S. international economic leadership is beginning to unravel, the market-oriented ideology of mainstream economics is wearing thin. Even some economists, despite their training, are seeing through the threadbare patches in the neoclassical fabric to notice why. On the macroeconomic level, conventional economics contains no theory of economic *development* in general and, hence, no theory of changes in international industrial leadership in particular. On the microeconomic level, it contains no theory of the process of *innovation* and, hence, no theory of changes in competitive advantage among business enterprises.

Based on the historical record of twentieth-century capitalist development and shifts in international industrial leadership, my fundamental thesis is that organizational coordination has increasingly replaced market coordination in ensuring the development and utilization of productive resources. The basic evidence to support the thesis is the growing importance of organizational structure-what I have elsewhere called the planned coordination of the specialized division of labor (Lazonick 1991)-for the success of innovative (or developmental) investment strategies.

My focus will be on the historical role of "financial commitment," as distinct from financial mobility, in the rise of U.S. managerial capitalism and on how, in recent decades, the weakening of financial commitment has contributed to U.S. industrial decline. How was financial commitment structured in major U. S . industrial corporations in the first half of this century, when the United States came to dominate the international economy? And what role has the erosion of financial commitment played in the decline of U.S. industrial power over the last few decades? I shall not pretend to offer definitive answers to these questions here. Given the failure of mainstream economics to deal with the business organization as an engine of innovation, my purposes are to raise these questions, to show the relevance of a focus on innovation for addressing them, and to demonstrate the possibility that the historical analysis of the rise and decline of U.S. managerial capitalism can generate plausible answers to them. My basic argument concerns the incentives and abilities of strategic managers of U.S. industrial corporations to use the earnings of the enterprises that they control to finance innovative investment strategies. I

3. See also Lazonick 1991, chap. 4.

argue that, given the intensified global competition of recent decades, pressures created by the rise of the market for corporate control have biased many once-dominant U.S. industrial corporations against innovative competitive responses.

Financial Commitment in the Nineteenth Century

The integration of asset ownership and managerial control characterized the finance of industry in the nineteenth-century United States. Owners of firms made strategic investment decisions, relying on their own capital and that of friends, family, and former business associates to launch new ventures. They then relied on retained earnings to transform the new ventures into going concerns.

Despite the lack of developed markets for industrial securities in the nineteenth century, owner-managers of going concerns found ways to raise additional capital without diluting either their ownership shares or managerial control. One method was for a group of industrial capitalists to found a bank from which they could have privileged access to loan capital (Lamoureaux 1986). Such an inherently friendly financial institution would not put the squeeze on its borrowers in downturns. The lending of the bank's invested capital back to the industrialist investors in effect permitted each member of the industrial group to diversify his investments across the group's various businesses while retaining ownership and control over his own. The system also permitted each member to secure a return on funds that were temporarily idle but that might soon be needed by the member's business enterprise. By creating a diversified local capital market, a bank also enticed local insurance companies to invest in its stock, increasing the loanable funds available to the industrialists who had founded the bank.

But the absence of well-developed markets in industrial shares made it difficult for industrialists to break the link between ownership and control if they wanted to retire 'from active management or realize the monetary value of their accumulated assets. One option for the owner-manager who had built up the firm was to exercise his prerogative of living off the productive assets that he had accumulated, perhaps ultimately running the business into the ground. Alternatively,, he could preserve the firm's assets by passing control and ownership along to a family member or by selling the business to another owner-manager (or group of owner-managers), if a buyer with the requisite financial resources and managerial capabilities could be found. In either case, the integration of ownership and control was preserved because owners remained managers.

The 'separation of asset ownership and managerial control in the United States began with the railroads (Chandler 1954). Local merchants and other

businessmen who stood to gain from a railroad connection with another region contributed the share capital that enabled construction on the roadbed to begin. Most of the remaining railroad capital was raised by floating bonds, an activity that led to the rise of the Wall Street investment banks and, as the railroads expanded their investment scale and geometric scope, the creation of hierarchies of salaried managers to run what Alfred Chandler has called the nation's first big business (Chandler 1965).⁴

The permanency of the railroads as going concerns made it possible for the original owners to sell their shares to portfolio investors. These transfers of ownership, in conjunction with the convertability of many railroad bonds into equity shares, resulted in the formation of secondary markets in railroad stocks and the separation of asset ownership from managerial control. The separation was viable precisely because the railroads had invested in organizational capabilities—owners could come and go, but the managerial organizations that ran the railroads stayed intact. Critical to the coherence and continuity of these managerial organizations were the career managers who, prefiguring twentieth-century modes of management development and organizational commitment, began as technical specialists but had opportunities to move up and around the corporate organization to general management positions.

Speculation in railroad stocks, takeovers, and bankruptcies marked the later decades of the nineteenth century. Those railroads that had developed superior organizational capabilities in the middle decades of the nineteenth century found themselves better prepared to respond to this early market for corporate control, whether financiers exercised control through the stock or bond market. For example, in 1869, the Pennsylvania Railroad drew on its already developed organizational capability to expand its system westward in order to counter Jay Gould's attempt to take control of the railroad's connections west of Pittsburgh. Even when, as happened from time to time in the last decades of the nineteenth century, a major railroad went bankrupt, its managerial structure remained intact as the reorganized company resumed building its transcontinental system (Chandler 1977, 135-36, 170).

Until the merger movement that began in the 1890s, a national market for *industrial* securities did not exist in the United States (Navin and Sears 1955). Unlike new railroads, which could count on privileged access to the demand for transportation services over local routes, any particular industrial concern could not, as a new venture, offer investors any certainty of even capturing local markets. Industrial entrepreneurs had to rely on their reputations and connections to raise private capital, and equity investors had to be prepared to lose their capital without any possibility of exit via the (nonexis-

4. See also Chandler 1977. 3-5.

tent) stock market. For example, Andrew Carnegie drew on connections that he had made as a railroad executive to finance his venture into steel making, while Alexander Graham Bell secured financial backing from the parents of two deaf children to whom he had been teaching speech.⁵ Once the most successful new ventures became going concerns, they were able to finance their continued expansion on the basis of retained earnings. Indeed, Andrew Carnegie used his "ironclad agreement" with his financial partners to plough back earnings into his steel-making business rather than give in to their persistent demands for dividends. Over the long run, shareholder value in the Carnegie Steel Company was in no way diminished by Carnegie's insistence on pursuing a strategy of continuous innovation.

As in the case of Carnegie, by the 1890s, a large number of owner-managed industrial enterprises had, by using earnings to finance continuous innovation, transformed themselves into not only going but dominant concerns. In the process, they ceased to be merely owner-managed, or "entrepreneurial," firms. Central to the success of these firms was the recruitment, training, retention, and motivation of specialized personnel organized into the hierarchical and technical division of labor known as managerial structures (Chandler 1977). Staff personnel developed new products and processes that were the essence of a technologically dynamic firm's investment strategy. Line personnel ensured the high-speed and continuous utilization of the productive resources in which the firm had invested.

The firms that dominated in industrial competition were those that made financial commitments, not only to investments in plant and equipment but, even more fundamentally, to the training and remuneration of key personnel, thereby transforming the individual rationalities of participants in the specialized division of managerial labor into firm-specific, collective rationalities that constituted a powerful productive force. They dominated, moreover, despite the high fixed costs inherent in their investments in organization building. Through the superior development and utilization of productive resources, the managerial organizations that emerged in the last decades of the nineteenth century permitted the transformation of the high fixed costs of innovation into high-quality products at low unit costs.

Managerial Capitalism

In many of the more capital-intensive industries, dominant firms were central actors in the merger movement of the 1890s and early 1900s that sought to eliminate competition and consolidate market shares among the remaining

5. See Livesay 1975, chaps. 4 and 5; Reich 1985, 130, 132. See also Doerflinger and Rivkin 1987, chap. 5.

few. Over the long run, the most successful mergers proved to be in those industries in which continued product and process innovation and high-speed utilization of production and distribution facilities were most important for sustaining competitive advantage. Not by accident, competitive advantage in these industries went to those firms that had put in place the superior managerial capabilities for the development and utilization of productive resources.

But the great merger movement did more than merely concentrate market shares. With J. P. Morgan taking the lead, Wall Street financed the mergers by selling to the wealth-holding public the ownership stakes of the entrepreneurs who had built up their companies from new ventures to going concerns during the rapid expansion of the U.S. economy in the decades after the Civil War. The result was to transfer ownership of corporate assets from the original owner-managers to a widely distributed population of the wealth holders. The enhanced dominance of the new combinations plus the backing of Wall Street encouraged private wealth holders to invest in industrial stocks. By the early 1900s the merger movement had created a highly liquid market in industrial securities, thus making stock ownership all the more attractive; beyond the price of the stock, share holding did not require that the new owners make any further commitment of time, effort, or finance to "their" firms.

In contrast to the owner-managers who had built the new public corporations into going concerns, the new owners were portfolio investors. The purchase of common shares did not finance new investments in organization and technology. Rather it financed the *retirement* of the old owners from the industrial scene. The separation of ownership from control that occurred in U. S. industrial enterprises at the turn of the century enhanced the managerial and financial capabilities of dominant firms. These firms already had powerful managerial organizations in place that could take over strategic command from the retiring entrepreneurs. By reducing the possibility of nepotism in top-management succession, the removal of proprietary control opened up new opportunities for upward mobility for career managers, these opportunities cementing their commitments to the long-run fortunes of their particular firms. Over the courses of their careers, these career managers, many of whom held science-based college degrees, developed irreplaceable knowledge of their firms' technologies and organizational structures. During the first decades of this century, it was such managers, their upward mobility unimpeded by family control, who typically rose to top-management positions in major industrial firms. Not coincidentally, the first decades of this century also saw the dramatic transformation of the U.S. system of higher education away from the elite British model (with its aristocratic pretensions) to one that served the growing needs of U.S. industrial corporations for managerial personnel (Noble 1979; Lazonick 1986).

From the perspective of sustained industrial innovation, therefore, the key impact of the separation of ownership from control in the United States was to overcome the **managerial** constraints on the building of organizational capabilities and the growth of the firm. Moreover, the way in which ownership was separated from control enhanced the financial commitment of these firms. Prior to the turn-of-the-century merger movement, most industrial share issues in the United States were, as in Britain, preferred stocks that, unlike common stocks, created fixed claims on the future earnings of the enterprise. The great merger movement, however, created a widespread secondary market in industrial securities that made the higher risk of common stock more acceptable to portfolio investors willing to speculate for the sake of capital gains. Despite after-the-fact complaints of "watered" stock, the asset base for the major common stock issues—these listed on the New York Stock Exchange—was the **existing** revenue-generating organizational capabilities of the industrial enterprises. As I have mentioned, the financial capital raised from these issues was not (contrary to shareholder folklore) used to finance new investments in organization and technology but to permit owner-entrepreneurs to take their leave without disrupting the continuity of the enterprise.

The "Loyal" Shareholder

The new "owners," moreover, were willing to hold common shares in these enterprises despite their lack of power to ensure the distribution of earnings. The track records of these dominant firms, their enhanced positions of market dominance through mergers, the reputations and financial connections of the prominent Wall Street investment banks, and the listing requirements of the New York Stock Exchange all combined to ensure the widespread distribution of share holding (Michie 1987).⁶ The result was a national market in industrial securities characterized by the fragmentation of the new owners into a multitude of remote and passive shareholders. The managers of the major industrial corporations were left firmly in financial control. A cautious dividend policy not only gave them privileged access to the earnings of the firm but also boosted their bond rating with Standard and Poor's or Moody's. This enhanced financial standing enabled the industrial managers to leverage their financial resources, if need be, for the sake of pursuing innovative investment strategies. After the turn-of-the-century merger movement, the main industry-related business of Wall Street investment bankers was to market the bond issues of those going, and growing, concerns with which they had developed close relations.

6. See also Carosso 1970, chaps. 2-4 and Carosso 1987.

The fact is that (again contrary to shareholder folklore), common share issues have never been important in U.S. industry as a means for financing enterprise expansion. Robert Taggart has shown that the large volume of new share issues represents only a small proportion of the capital raised by U.S. corporations (Taggart 1986). As a general rule in the United States, the issue of new shares is a one-shot deal that occurs when owner-entrepreneurs (and their venture capitalist partners) take their firms public. The period from the 1890s through the 1920s was one in which the entrepreneurial firms that emerged as dominant in late nineteenth and early twentieth centuries went public, and, as Alfred Chandler and others have shown, these firms have continued to dominate U.S. industry, even though some of them have disappeared through mergers and acquisitions (Chandler 1977, 1990b; Edwards 1975). As I have noted, moreover, the new share issues did not finance investment in new assets; they merely transferred ownership claims on existing assets. In addition, as we shall see, in the boom of the late 1920s (and in sharp contrast to the practice of the 1980s), many industrial corporations issued shares that they knew to be overvalued in order to retire debt.

The structure of U . S . securities markets renders the use of share issues to finance expansion expensive, not because of the transaction costs involved in equity financing, but because of the adverse signals that an attempt at equity financing would send to potential investors. In effect, in choosing equity over debt financing for the expansion of assets, the manager of a going concern would be telling portfolio investors that he or she does not have the confidence that the firm is enough of a going concern to meet the additional debt-service requirements of the new investments had they been financed by a bond issue, and, indeed, that he or she lacks confidence that, over the long run, the new investments will generate a rate of return in excess of the corporate bond rate. The attempt by a going concern that has access to debt financing to finance expansion with equity would therefore be self-defeating.

During the 1910s and 1920s, while the major industrial corporations were establishing their positions as ongoing concerns, there was a further dispersion of ownership of industrial stocks among the wealth-holding public (Means 1930). The dispersion of ownership consolidated managerial control in the dominant corporations. As the secondary security markets developed into veritable national institutions, portfolio investors became increasingly willing to hold common stocks, particularly during periods such as the late 1920s when spectacular capital gains were being made. In 1927, U.S. corporations issued \$1,054 million of preferred stock and \$684 million of common stock; in 1929, these figures were \$1,695 million and \$5,062 million. During the Great Depression and World War II, issues of preferred stock were generally greater than issues of common stock, but during the post-World War II decades the reverse was typically the case. In 1946, common issues

were \$891 million and preferred issues were \$1,127 million. But in 1969, at the peak of the conglomerate movement, these figures were \$7,714 million and \$682 million—a common-preferred ratio of 11: 1.⁷

Throughout the twentieth century the small common shareholder has lacked *direct* power to influence the distribution of surplus revenues. Yet evidence on well-managed firms up to the present shows that managers are reluctant to change, and particularly to cut, dividend levels (Lintner 1956; Black 1976; Donaldson 1984, 83-84). In a period of declining profitability, managers are reluctant to cut dividends because of the fear of antagonizing the firm's "loyal" shareholders who, in Gordon Donaldson's words, "are the antithesis of portfolio investors who trade in and out of the company's stock and make alternative investments easily (Donaldson 1984, 49)." In a period of expanding profitability, the same absolute level of dividends results in a falling payout ratio and an increased ability of managers to incur more debt without increasing the firm's debt-equity ratio. Under such circumstances, management may be able to increase dividends without jeopardizing the financing of a projected innovative investment, but may be unwilling to do so to avoid having to cut dividends should these projections prove insufficient to carry the strategy through to success.

Financial Commitment in the Era of Dominance

It is obviously much easier for shareholders to be disloyal when asset ownership has been concentrated in a few hands than when it has been fragmented. If, as I shall argue, shareholders of industrial assets were more loyal before about 1960 than after, it was because, in the earlier period, asset ownership continued to be highly fragmented. During the first half of this century, the most powerful *financial* institutions, which could have potentially concentrated ownership and vied for financial control of the industrial corporations, did not challenge managerial control or undermine financial commitment.

When a firm went public, a Wall Street investment bank, of which J. P. Morgan was by far the most powerful, would use its power to ensure that family members departed as managers of the newly public corporations (DeLong 1989). But (unlike the German Great Banks) J. P. Morgan had little, if anything, to do with developing the individual capabilities of the salaried managers who took over or with building the organizational capabilities that permitted the dominant enterprises with which Morgan maintained connections to continue to undertake and implement innovative investment **strat-**

7. U.S. Bureau of the Census 1976, 1005-6. During the 1970s this ratio fell to less than 3: 1, with preferred issues averaging \$2805 million per year. In the 1980s, however, the ratio went back up to about 8:1. *Economic Report of the President 1989 1989, 415.*

egies. As institutions that made money marketing corporate bonds to finance enterprise expansion, the primary interest of Wall Street investment banks was that their client industrial enterprises be willing and able to undertake innovative investment strategies. In contrast to the current dominance of financial over industrial interests that I shall document later, Wall Street was, in the first half of this century, at the service of the development of managerial capitalism.

The prime customers for corporate bonds were commercial banks, mutual savings banks, and insurance companies. In 1929, these financial institutions together held over 27 percent of the outstanding U.S. corporate bonds, but only 1 percent of outstanding corporate stocks. By 1952, these institutional investors held over 69 percent of the outstanding U.S. corporate bonds (with life insurance companies alone holding 58 percent), but less than 2 percent of U.S. corporate stocks (Goldsmith 1958, 224-25). In an era when ordinary households had few alternatives for portfolio investment and when the level of interest payable by banks was constrained through regulation, these financial institutions made their money on the differential between their borrowing and lending rates of interest, not by exerting pressure on industrial corporations to increase their dividend levels or the market value of their stock. In the era of U.S. industrial dominance, the markets for bonds and stocks were segmented, with the powerful bondholders largely indifferent to stock yields and the fragmented shareholders unable to make a difference.

Shareholders did not lose out by their lack of financial control. In the 1920s, as the major manufacturing corporations were paying their workers somewhat higher wages and expanding market shares by reducing product prices to consumers, they were paying out well over 60 percent of net income as dividends to shareholders (U.S. Bureau of the Census 1976, 200, 941).⁸ During the 1920s, large manufacturing corporations still had enough retained earnings to fund virtually all their fixed capital outlays. The culmination of several decades of industrial innovation had created a positive-sum situation in which it was possible for many different interests simultaneously to experience gains (Lazonick 1990, chap. 7).

As industrial stocks became grossly overvalued during the late 1920s, many firms sold additional shares, not to finance new investment, but to retire outstanding debt. The result was, of course, simply to feed the speculative frenzy. Indeed, the high profits left many manufacturing corporations so awash with cash that, rather than make even more direct investments, they took advantage of the speculative fever to lend some of their surplus funds on the New York call market where gamblers were paying as much as 12 percent for brokers' loans. As the volume of brokers' loans outstanding almost tripled from the end of 1924 to the end of 1928, the proportion of the loans made by

8. See also Koch 1943.

nonbank lenders increased from 25 percent to 60 percent. As the stock market **began** its decline and margins could not be met, the same corporations were **the** first to call their loans, thereby forcing the market down even further. The **nonbank** lenders decreased their loans outstanding from \$3.9 billion at the end of 1928 to \$2.5 billion at the end of 1929 to \$610 million at the end of 1930, whereas the brokers' loans of the New York City banks declined from \$1.6 billion at the end of 1928 to \$1.2 billion at the end of 1929, and actually rose by \$80 million over the following year (Galbraith 1980, 19-20; Keehn and Smiley 1988; U.S. Bureau of the Census 1976, 1009).

The phenomenal value-creating capabilities of the major manufacturing corporations had set the stage for the Great Crash. Unlike top industrial managers who were well aware of any slackening of demand for existing products and who were in the best positions to assess the organizational and technological problems of moving into new product lines, portfolio investors simply had no concept of the limits to industrial expansion under existing institutional arrangements. A major limit was the restricted organizational capability of the dominant industrial enterprises to move into new lines of business once the modern plant and equipment to service their traditional product markets had been put in place. The 1920s saw the **emergence**, but not, as yet, the widespread diffusion, of the multidivisional organizational structure that would enable manufacturing corporations to build on their technological and organizational strengths to move into new product lines and market areas in the 1940s and 1950s.⁹

With the accumulation of internal financial reserves outstripping the requirements for new investments, the dominant U.S. industrial enterprises entered the Great Depression unburdened by debt. The widely dispersed shareholders were, moreover, unable to **use** the crisis of the 1930s to raid the corporate treasury. True, during the 1930s these firms lost control over their shop-floor work forces—a control that management had won during the “positive-sum” decade of the 1920s.¹⁰ Thrown out of work in the 1930s, the blue-collar workers joined independent industrial unions to secure their economic futures. But during the decade, the dominant industrial corporations ensured their long-term continuity by keeping their managerial structures intact. With financial commitments unchallenged, these corporations continued to make developmental investments in technology and organization in preparation for the return of more prosperous macroeconomic conditions.¹¹

Indeed, as in the 1920s, so too in the 1930s U.S. manufacturing corpora-

9. Chandler 1966. For the slow diffusion of the multidivisional structure in Britain and its relative ineffectiveness even when put in place, see Channon 1973; Hannah 1983; Marginson et al. 1988.

10. See Lazonick 1990, chap. 9.

11. For general evidence, see Bernstein 1987, chap. 4. For a specific case study that spans the 1930s, see Hounshell and Smith 1988.

tions continued to augment their R&D capabilities. In 1921, the research laboratories of U.S. manufacturing enterprises had 2,775 scientific and engineering personnel, or 0.56 research professionals per thousand manufacturing employees. By 1933, the number of research professionals had risen to 10,927, or 1.93 per thousand manufacturing employees. In 1940, the R&D laboratories of manufacturing firms had increased the employment of scientific and engineering personnel to almost 28,000, or about 3.5 per thousand manufacturing employees (Mowery 1986, 19 1-92; Chandler 1985). At least one corporation-IBM-was able to keep its entire work force fully employed during the 1930s by selling business machines to the New Deal government (Sobel 1981, chap. 4). By virtue of this organizational continuity in the service of innovative investment strategy, the very same corporations that had brought U.S. industry to international dominance by the 1920s extended that dominance during and after World War II.

U.S. Industrial Decline

Just over a hundred years ago, in 1888, with an average 46 percent ad valorem tariff on the 66 percent of all imports that were dutiable, the U.S. economy ran a deficit of \$41 million on its merchandise balance of trade (Sheiber, Vatter, and Faulkner 1976, 286; U.S. Bureau of the Census 1976, 864). For the next eighty-two years, with the exception of one (1935), the United States had a positive merchandise trade balance. Fluctuations in the merchandise trade balance in the 1970s (four years of surplus and six years of deficits) gave optimists reason to believe that, once U.S. industry recovered from a variety of "shocks," it would again assume its preeminent position.

That optimism was unwarranted. The 1980s saw a dramatic decline in the merchandise trade balance from -\$31 billion in 1980 to -\$170 billion in 1987. Despite a marked improvement in exports at the end of the decade, imports increased fast enough to generate a deficit in the trade balance of -\$129 billion in 1988 and -\$133 billion in 1989 (*Economic Report of the President* 1989, 428; *New York Times*, Dec. 17, 1989). In 1980, the optimists could still point to a positive manufacturing trade balance of about \$19 billion. But since then, and despite the weakening of the U.S. dollar since the mid-1980s, the trade balance in manufactures has been in deficit, increasing to -\$145 billion in 1986 and -\$154 billion in 1987. Mirroring U.S. industrial woes were the Japanese trade surpluses in manufacturing that averaged over \$100 billion per year during the first half of the 1980s (Cohen and Zysman 1987, 63).

The U.S. economy is in the throes of long-term industrial decline, in part because of the failure of the major U.S. industrial enterprises to pursue innovative investment strategies, and in part because of the rise of foreign

competitors with much greater organizational capabilities and financial commitments. The rise of these competitors-and for the United States it is Japanese competition that is most relevant-calls for greater organizational capability and financial commitment on the part of the U.S. business enterprises if the U.S. economy is to generate the higher quality products at lower unit costs that can recapture lost markets and take advantage of new market opportunities (Lazonick 1991, chap. 3).

The rise of a market for the control of corporate assets and revenues may not be the root cause of U.S. industrial decline, but it has become integral to the dynamics of the weakening of U.S. incentives and abilities to innovate. In particular, I shall indicate how the transformation of financial markets in corporate securities over the past few decades has increased the incentive and ability of industrial managers to choose investment strategies that benefit short-term earnings performance while eschewing innovative investment opportunities that are the sine qua non of industrial dominance.

The Way It Used to Be

Drawing on the historical outline of financial commitment in the U.S. rise to industrial dominance that I have already presented, let me briefly recapitulate the way it used to be, when common stocks were in the hands of individual investors and corporate bonds were in the hands of institutional investors. With their power to influence corporate payout policy low and the transaction costs of trading in shares high, most individual shareholders were, perforce, loyal. Just as today an individual can choose a particular type of mutual fund to suit his or her needs and wants, so could (and can) an individual investor choose a particular portfolio of industrial securities that met (or meets) his or her preferences for short-term dividends versus capital gains. For those shareholders who looked to their portfolios for predictable streams of income, corporate managers sought to keep the level of dividends stable or gradually rising as earnings and the needs of enterprise investment strategies permitted. Except in a period of general depression beyond the control of the particular firm, a decrease in dividends represented a managerial admission of inferior performance and could be counted on to create disloyal shareholders.

Save for a macroeconomic catastrophe such as the Great Depression, the dominant industrial corporations could also (precisely because they were dominant) count on a predictable cash flow from retained earnings to provide the financial bases for investments in expansion and innovation. Meanwhile, the institutional investors of that earlier era-insurance companies, commercial banks, and mutual savings banks-continued to channel household savings into long-term industrial investments by absorbing the bond issues of the industrial corporations. In a regulated financial environment, holders of bank

deposits and insurance policies got a low but stable return on their savings while the dominant industrial corporations, with their investment-grade ratings from Wall Street, had, again by virtue of their dominance, access to relatively low-cost funds for industrial expansion. During the 1940s, the rate on Moody's Aaa-rated corporate bonds averaged 2.71 percent, varying between a low of 2.53 in 1946 and a high of 2.83 in 1942 (U.S. Bureau of the Census 1976, 1003).

Disloyal shareholders did exist in the first half of the century, and even many shareholders who would have otherwise been counted as "loyal" found it worthwhile to trade rather than hold during the speculative mania of the late 1920s. As we have seen, even corporate management became involved in the pre-Crash boom, as they sold overvalued shares to retire debt and as they made funds available on the call market. It may be that these preoccupations with the stock market distracted industrial CEOs from sustaining the innovative investment processes that could have permitted "fundamental values" to keep pace with soaring market prices and could also have helped forestall the recession in industrial activity that preceded the Great Crash.¹² Nevertheless, despite the speculative stock trading of the late 1920s and, in some ways, because of it, the dominant industrial enterprises emerged from the Great Crash and the Great Depression with sufficient financial commitment to continue to build the organizational capabilities of their managerial structures and sustain the innovative investment strategies that had made them dominant initially.

A New Economic Era

Since the 1950s, the basic economic conditions that influence the investment strategies of U.S. industrial corporations have changed in two fundamental ways, the one having to do with the rise of international competition and the other with the transformation of U.S. financial markets. First, and of greater importance, U.S. industrial enterprises no longer dominate the international economy. The new international competition makes the success of an innovative investment strategy a much more uncertain affair than it was in the era when, in capital-intensive industries, a few domestic oligopolists competed for market share. In any given industry, even those U.S. enterprises that possess the most organizational capability and financial commitment among domestic competitors, many no longer are the enterprises that can take the lead in generating higher quality products at lower unit costs. Increasingly, the investment strategies of once-dominant U.S. firms must *respond* to foreign competitors who have already implemented innovative investment strategies.

12. See Gordon 1974, chap. 2; Baran and Sweezy 1966, chap. 8

Under these circumstances, quite apart from the transformation of U.S. financial markets, it may be rational for a firm in possession of organizational and physical capital accumulated over decades of dominance to live off its past success rather than invest for the future—to turn to what I have elsewhere described as an adaptive as opposed to an innovative investment strategy.

Given the rise of international competition, the relevant question is whether or not the rise of the market for corporate control in the United States has undermined the incentive and ability of strategic managers of going concerns or new ventures to respond to international competitive challenges. I shall argue that it has. I emphasize that I am not arguing that the rise of the market for corporate control is the root cause of U.S. industrial decline. Nor am I arguing that the corporate takeover, the most obvious manifestation of the existence of the market for corporate control, is the only way in which increased shareholder power has influenced, or can influence, the choices of investment strategy that industrial managers make. Rather, as I will show, my argument is that, through the normal operation of U.S. financial markets and as a result of cumulative (although often cyclically sensitive) pressures that have built up in the U.S. economy since the early 1950s, the rise of shareholder power has eroded the organizational capability and financial commitment of the U.S. industrial enterprise. By tracing the process of financial transformation in the United States over the past four decades—and the resultant sources of shareholder power, I shall suggest a number of ways in which the rise of the market for corporate control has weakened the incentive and ability of strategic managers to engage in innovative investment strategies. In the light of these arguments, I shall leave it to proponents of the market for corporate control to inform me of ways in which the transformation of U.S. financial markets over the past four decades has enhanced the innovative capability of U. S . industry.

The High Cost of Financial Capital

Apart from new ventures (which I shall consider toward the end of this essay), the financial basis of innovative investment strategies in the United States has always been, and remains, retained earnings. For strategic managers of going concerns, retained earnings permit new investments in organization and technology to be financed without incurring legal obligations to pay returns. Retained earnings represent low-cost finance, and control over retained earnings is the quintessential mode of securing financial commitment. In addition, a stream of retained earnings can be used to pay the interest charges on investments that are externally financed. Depending on projected sales revenues, earnings retention, and bond rates, strategic managers can choose a debt-equity ratio that leverages retained earnings without jeopardizing finan-

cial commitment—the financial ability of the firm to implement its investment strategy. ¹³

Because well-managed firms do not normally fund enterprise expansion by the sale of stock but by retained earnings (leveraged if need be), strategic managers have an interest in low price-earnings ratios (P/E ratios) for the common stocks of their own companies. High P/E ratios place upward pressure on dividends as shareholders seek to maintain stock yields. The alternative for the shareholder is to “declare a dividend” by selling the stock (Lowenstein 1991). Insofar as the traded stock falls into the hands of shareholders who are able (and, by virtue of having to pay a high price for the stock, willing) to put pressure on management to raise dividends and hence yields, retained earnings and financial commitment will be eroded. There is a conflict of interest, therefore, between U.S. shareholders, who want a high P/E ratio and high dividends, and U.S. industrial managers, who, insofar as they function as strategic managers and not as shareholders, want low P/E ratios and low dividends.

As the Japanese have shown in recent years, it is possible to have financial markets that permit portfolio investors to trade and speculate in (typically) small floats of company shares that attain astronomic P/E ratios without affecting the payout policies of the underlying companies, most of whose shares are held by other companies who do not trade in them (Ballon and Tomita 1988; Matsumoto 1989).¹⁴ Basically, Japanese portfolio investors and Japanese direct investors are playing two very different games, one largely speculative and the other largely innovative. Thus far at least (and I do not foresee the segmentation breaking down in the near future), the institutional structures of Japanese finance have ensured that the speculators have not been able to interfere with the innovators. With their overwhelming economic successes during the 1970s and 1980s, moreover, many major Japanese industrial companies have used their earnings to reduce their outstanding debt, in much the same way that major U.S. industrial corporations took advantage of their success to restructure their finances in the 1920s. In securing their long-term financing, Japanese industrial corporations have not fallen under the domination of a market for corporate control.

During the period when Japanese corporations relied on bank loans to finance long-term investments, the Japanese savings system (combined with government subsidies) kept the cost of finance capital low. In historical perspective, major U.S. corporations also enjoyed an era of inexpensive finance—an era when the banking system was highly regulated, the portfolio

13. For a “financial goals” orientation that is consistent with my approach, see Donaldson (1984); see also Lowenstein (1991).

14. For a competitive perspective, see Ellsworth 1985; Lowenstein et al. 1988.

investment alternatives for households were relatively restricted, and institutional investors were the primary holders of corporate bonds and held very little common stock. During the post-World War II decades, new types of institutional investors arose, the segmentation between the bond and stock market gradually broke down, and the portfolio investment alternatives for households expanded considerably. In the late 1970s, the banking system was deregulated to conform to these new financial realities. The result, as table 1 shows, was an enormous increase in the real cost of finance capital in the 1980s.

During the 1970s and 1980s the yields (the dividend-price ratios) on New York Stock Exchange common stocks did not quite attain the high levels of the early 1950s, but did recover from the lows of the 1960s. A quadrupling of total dividend payments between 1974 and 1988, with dividends increasing by 11 percent between 1987 and 1988 and by 21 percent between 1988 and 1989 (New York Stock Exchange 1989, 78), permitted the recovery of New York Stock Exchange stock yields despite the rapid increase in stock prices (see table 2). From 1978 to 1989, stock prices increased at an average annual compound rate of over 11 percent per year; these increases even permitted portfolio investors to adjust to the high rates of inflation of the late 1970s and early 1980s.

Meanwhile, the meager (and in some years negative) real interest rates on Aaa-rated corporate bonds in the 1970s were replaced by rates averaging well over 6 percent between 1982 and 1989—rates that, in contrast to previous decades, outstripped the high yields on stocks. In the market for corporate control, holders of corporate securities had found more than one way to

TABLE 1. Average Annual Percentage Yields on Corporate Bonds and Common Stocks, 1950-89

	Real Interest on Bonds ^a	Yield on Stocks ^b
1950-54	0.39	5.85
1955-59	2.12	3.94
1960-64	3.29	3.20
1965-69	2.21	3.18
1970-74	1.63	3.47
1975-79	0.67	4.69
1980-84	5.43	5.06
1985-89	6.45	3.58

Source: Data from *Economic Report of the President*, 1990 (Washington, D.C.: Government Printing Office, 1990). 364, 376, 401.

^aMoody's Aaa-rated bonds only.

^bDividend-price ratio for all common stocks listed on the New York Stock Exchange.

TABLE 2. Average Annual Percentage Changes in Prices of New York Stock Exchange Common Stocks, 1950-89

	Change
1950-55	15.28
1955-60	7.37
1960-65	9.90
1965-70	-0.24
1970-75	5.39
1975-80	8.61
1980-85	10.58
1985-89	14.38

Source: Data from *Economic Report of the President*, 1990 (Washington, D.C.: Government Printing Office, 1990), 401.

tap the corporate treasury. Since the 1950s, financial commitment in the United States has rested on weak foundations when compared with the secure modes of industrial finance available to foreign competitors. Yet through the 1970s, the major U.S. industrial corporations kept the real cost of capital under control. It was in the 1980s that the low cost of financial capital needed for direct investment gave way to the high yields on finance capital desired by portfolio investors.

The high cost of finance capital was, I would argue, just the most obvious sign of the erosion of the financial commitment to industrial investment in the United States. High-cost finance tends to be mobile finance, always on the move, searching for higher short-term yields. When U.S. industry was less dependent on the financial markets to supply its funding requirements, the cost of financial capital was low and finance was committed. Now that U.S. industry has become more reliant on the financial markets to fund innovative investment strategies, the cost of financial capital is mobile, thus reducing the incentive for U.S. industrial corporations to undertake innovative investment strategies. The rise of the market for corporate control is not the cause of U.S. industrial decline, but the inability-or even (as I shall argue) unwillingness-of strategic managers to control the market for corporate control is helping to ensure that U.S. industrial decline will not be reversed.

Historical Perspective

The historical outline I shall present here is a prelude to the complete historical analysis of the decline of financial commitment in the United States and

its relationship to the nation's long-term industrial decline that remains to be done. The complete analysis ultimately requires a combination of case histories of the investment strategies of particular firms over the post-World War II decades and the competitive dynamics among firms in particular global industries as well as statistical analyses using firm-level data that can differentiate between innovative and adaptive investment behavior.¹⁵

Conceptualizing the distinction between innovative and adaptive investment strategies is a first step toward a complete historical analysis. From the point of view of the wealth of the nation, it makes no sense to credit the market for corporate control with forcing management to be more "efficient," if cutting unit costs on the basis of given productive capabilities makes it impossible for the enterprise to lower unit costs by investing in the development of superior productive capabilities. Some firms may be able to adapt on the basis of existing productive resources and innovate by developing superior productive resources as *complementary* competitive strategies. But if the financial pressures to adapt become too great, the firm will not, and ultimately cannot, also innovate unless a new source of financial commitment is forthcoming.¹⁶

The historical perspective that I offer here focuses first on the ways in which strategic managers came to identify more with the fortunes and power that they could attain as individuals by securing higher market valuations of their firms in the short run, and how this strategic orientation fostered the conglomerate movement of the 1960s and left major corporations vulnerable to the market for corporate control in the 1980s. I then indicate how, in the mid-1970s, the productive failures of the conglomerate movement laid the basis for the rise of the junk-bond market, a market that subsequently took on a life of its own in the 1980s, as the battle for corporate control became headline news. I go on to view the rise of the junk-bond market as the result of not only the corporate failures of the 1960s but also portfolio investors' search for higher yields on corporate securities, a search that was begun in earnest by the mutual funds of the late 1950s but that reaped its greatest rewards in the

15. For a case study approach that seeks to explore the link between organizational capability and financial commitment, see Rosenbloom 1989. For the type of data that might begin to distinguish between adaptive and innovative responses, see Lichtenberg and Siegel 1989. That there is a need for more microeconomic empirical analysis of particular industries and particular firms is evident in Dertouzos, Lester and Solow 1989. In contrast to my argument that strategic managers can, by their investment strategies and payout policies, influence the long-run cost of capital to their firms, the authors of this important work treat the "cost of capital" as a purely exogenous factor in the determination of managerial time horizons and, hence, in the nature and extent of the firm's investments (59-63).

16. This line of analysis, which is suggested in Joseph Schumpeter's (1947) distinction between creative and adaptive responses, is also inherent in William Abernathy's (1978) notion of the "productive dilemma." See also Clark, Hayes, and Lorenz 1985.

1980s. I then argue that, in the 1980s, the innovative strategies of new ventures have also been adversely affected by the search for higher yields, and that the difficulties of the U.S. venture capital industry over the last several years are directly related to the rise of the market for corporate control. Finally, I conclude with a few words on the problems that financial mobility creates for attaining and sustaining competitive advantage in an international economy in which successful innovation requires ever-increasing financial commitment.

Managers Become Owners

The erosion of financial commitment is facilitated if those who occupy strategic management positions have an incentive to accommodate the desire of portfolio investors for high PIE ratios and high dividends. This possibility arose on a large scale in the 1950s with the adoption of stock options as a standard form of top management compensation. As Wilbur Lewellen shows for a sample of fifty Fortune 500 manufacturing companies, over the late 1940s, the top five executives derived less than 3 percent of their total after-tax compensation from stock-based rewards. This figure had climbed to 14 percent by 1953 and, by 1955, had jumped to 28 percent, so that their total after-tax compensation was 58 percent higher in 1955 than in 1950 and rose at a substantially faster rate than the incomes of doctors, lawyers, and dentists (Lewellen 1968, 172-73; 1971, 50). Over the 1955-63 period, stock-based rewards accounted (on average) for one-third of the total after-tax compensation of these executives (Lewellen 1971, 50).

Underlying the attractiveness of stock options as a form of executive compensation were increases in New York Stock Exchange common stock prices at a rate of over 24 percent per year between 1949 and 1956 as well as tax legislation that favored corporate compensation in the form of capital gains (Lewellen 1968, chap. 4; *Economic Report of the President 1989*, 416). The availability of stock options did not necessarily transform strategic managers into adaptive investors. The options could typically be exercised over a period of ten years, so that short-term time-horizons were not generally built into the compensation schemes. In a rising stock market, however, options exercised earlier added to income earlier, and the exercise of existing options could form the basis for the granting of new options. And the fact is that from the late 1940s to the late 1960s the U.S. stock market was generally on the rise.

Indeed, as stock-based rewards came to represent a substantial proportion of executive compensation, the tendency was for the beneficiaries to come to consider them as basic rewards. For example, in his 1968 book, *Executive Compensation in Large Industrial Organizations*, Lewellen argued

that “the most appropriate way to measure on a common basis the worth of the numerous supplements to direct current remuneration is simply to calculate the size of the salary increments which, if substituted for those supplements, would leave the individuals involved as well off (4).” Sure enough, when stock prices declined substantially in 1969 and 1970—the first large decline since 1947—stock-based compensation fell to only 12 percent of total compensation but was replaced by other forms of income (Herman 198 1, 95-96). The lesson for top managers was to be concerned with short-run stock market performance so that they could exercise their options early, establish a higher level of “base” pay on the basis of past “performance,” and get more options. 17

The ability of top managers to buy stocks at a discount provided the basis for career employees to be transformed into substantial owners. The exercise of stock options meant a stream of dividends if the managers held the stocks or, in a rising market, capital gains if the managers (usually after a restricted period) sold the stocks. During the 1950s, ownership income began to dwarf compensation income for top managers, rising from 76 percent of compensation income for the top five executives in Lewellen’s sample in 1950-53 to 434 percent of compensation income in 1960-63 (Lewellen 197 1, 90). With capital gains income over twenty times dividend income, and, hence, constituting the bulk of their total income, the lesson for top managers who were motivated by such matters—a lesson that was driven home to them with the decline of stock prices in the early 1970s—was to prevent even short-run declines in the market value of their companies’ stocks. Strategic managers joined portfolio investors in focusing on the “bottom line” of their companies’ quarterly corporate reports.

Ownership of one’s company is generally touted as a great motivator to superior economic performance—hence the widespread notion that the separation of ownership from control is corporate America’s original economic sin. Ownership is a great motivator for managers of new *ventures* who have to produce superior products at lower costs before they can gain access to superior (or even any) returns on their investments. Ownership ensures new venturers a share in the gains of enterprise *if and* when they occur, and, indeed, it is for this reason that innovative entrepreneurs and their venture-capital patrons keep ownership of the new venture in their own hands and seek to go public when they have created a going concern. Owner-managers of new ventures have no choice but to pursue innovative investment strategies if they want to reap returns.

The choice of investment strategy is by no means so constrained for

17. For a recent critique of the use of stock options for management compensation, see Crystal 1989.

those who control dominant going concerns—the types of firms that are listed on the New York Stock Exchange and represent the core of U.S. industry—precisely because the firms occupy dominant positions in their industries. Whether ownership and control is integrated or separated, the strategic managers of dominant going concerns have the ability to choose adaptive strategies that live off the returns generated by the innovative investments of the past as an alternative to devoting financial resources to innovative strategies that can generate returns in the future.

As I have already argued, in the first half of the twentieth century the separation of ownership from control enhanced the innovative capabilities of U.S. industrial corporations because it financed the retirement of individualistic empire builders and permitted professional managers to rise through the ranks and take over the direction of corporate strategy. During the first half of this century, most top managers of dominant firms engaged in what Richard Nelson and Sidney Winter have called “Schumpeterian competition”—competition among a few oligopolistic competitors with substantial accumulations of organizational capabilities and financial resources who were able to take market share away from each other (Nelson and Winter 1982; Chandler 1990b). These firms continued to invest in innovation to ensure that they maintained their market shares. Strategic managers had the industry-specific knowledge to understand the problems and possibilities of alternative innovative projects. Moreover, reliant primarily on managerial incomes that were designed to reward managers as they climbed the organizational hierarchy, the long-run success of top managers depended on the success of the organization as a whole, which in turn depended on controlling retained earnings and pursuing innovative investment strategies. Under such circumstances, strategic managers of dominant going concerns were disciplined in undertaking innovative investment strategies by the terms of their membership in the organization that we call the firm.¹⁸

Yet even in the first half of this century, when most dominant going concerns in the United States remained innovative, some strategic managers chose the adaptive route. A dramatic example, as Thomas McCraw and Forest Reinhardt have argued, was managerial decision making at U.S. Steel after the turn-of-the-century merger gave it a two-thirds market share in the domestic steel industry (McCraw and Reinhardt 1989). U.S. Steel had the organizational capability and financial commitment to engage in further innovation, and if it had done so it may well have totally dominated the domestic steel industry. But its already huge market share threatened it with antitrust action,

18. For a formal model of the impact of takeover threats on the ability of managers to undertake innovative investment strategies, see Foley and Lazonick 1990.

and, under these circumstances, it was to U.S. Steel's advantage to create a price umbrella that allowed other firms to compete. Indeed, as was particularly true in the case of Bethlehem Steel, the higher returns that could be reaped under the price umbrella as well as U.S. Steel's reluctance to compete for market share created incentives for competitors to undertake innovative investment strategies. Based on its prior success, U.S. Steel continued to make money even as it gradually lost market share. Over the decades, however, its reliance on this adaptive strategy led to an erosion of its organizational capability that came back to haunt the company in the 1960s and beyond, when new foreign competitors came on the scene.

For those dominant enterprises that remained innovative in the first half of the century with ownership separated from control, the critical question is whether the reintegration of ownership and control weakened or strengthened the innovative response. My view is that the access of top managers to substantial amounts of ownership income weakened the innovative response by providing them with individualistic alternatives to personal success that could best be achieved by choosing adaptive strategies. Like shareholders in general, owner-managers of these going concerns could benefit handsomely from adaptive strategies that reaped the returns of prior innovative investments (which had typically been made when enterprise ownership had been separated from managerial control), and indeed, insofar as high stock prices put upward pressure on dividends, these returns could be at the expense of retained earnings and, hence, investments that could ensure the future success of the enterprises.

Like shareholders in general, moreover, owner-managers of going concerns that are publicly traded can cash in by selling some of their stock if they foresee a decline in the fortunes of the enterprise (a decline that may very well be of their own making). In the 1980s, many top managers of industrial corporations went much further in devising new ways to cash in by exiting their firms. In creating "golden parachutes" in the event of a takeover and accepting bribes to facilitate a change of management, incumbent executives, in effect, assumed the right to sell not only ownership of shares in their companies but also their positions of managerial control.¹⁹ Starting with the reintegration of ownership and control in major going concerns in the 1950s and 1960s and continuing into the takeover mania of the 1980s, top managers began to set themselves apart from the rest of the managerial structure. As good solid U.S. individualists-as owners of shares rather than managers of organizations-their financial commitment was to themselves, not to their organizations. Such behavior is destructive of not only the financial commit-

19. For the magnitudes involved, see Phillips 1990

ment but also the organizational commitment that, over the course of the twentieth century, has become increasingly important for innovative investment strategies to succeed in international competition.

It might also be mentioned that such behavior is totally absent in dominant Japanese corporations. In Japan, strategic managers can benefit from neither the sale of stock nor the sale of offices. Even if they own shares on **their** own account, their dividend income is minimal because Japanese firms use their financial resources to further the innovative capabilities of the organization, not to fill the pockets of owners. The personal incomes of top managers are tied to the hierarchical structure of compensation within the enterprise, and their strategic behavior is disciplined by their life-long membership in the organization (Abegglen and Stalk 1985, chap. 8; **Ballon** and Tomita 1988). A recent U.S. view has it that “Japanese managers are increasingly unconstrained and unmonitored” and that “the long-term result will be the growth of bureaucracy and inefficiency and the demise of product quality and organizational responsiveness-until the waste becomes so severe it triggers a market for corporate control to remedy **the** excesses” (Jensen 1989, 73–74).²⁰ Don’t bet on it. Their career-long memberships in their firms constrain and monitor Japanese managers to ensure the long-run success of their organizations. Their freedom from the market of corporate control, moreover, far from undermining their innovative response, provides them with the financial commitment to pursue innovative investment strategies. And for those interested in the history of changing international industrial leadership, it is worth pondering that it used to be that way in the United States as well.

Conglomeration

Indeed, the emergence of strategic managers as owners in the 1950s may well have been the cause of the conglomeration movement of the **1960s**—a movement **that** further separated top management from participation in or identification with the organizational goals of the dominant going concerns. For those top managers who found that they could make more money by owning shares than by managing production and distribution processes, it made sense to use corporate financial resources to buy more companies, even if the products and processes that these companies produced bore no relation to the organizational capabilities of **the** acquiring firms. As is well known, the merger mania that peaked with over 6,000 mergers and acquisitions in 1969, but that continued well into the **1970s**, was characterized by an unprecedented movement of major corporations into lines of business in which they had no technological expertise (Chandler 1990a).

20. These statements are reproduced in more complete context later in this essay.

The top management of the acquiring firms controlled the financial resources required to undertake innovative investment strategies. But, as far as planning and implementing innovative investment strategies were concerned, the *strategic* managers had to be the "middle" managers who headed the conglomerate divisions and who (initially at least) had the requisite understanding of the division's organizational capabilities. Yet middle managers lacked the direct financial control—the financial commitment—that is essential to the management of innovation. With top management lacking both long-standing organizational links with their strategic subordinates as well as the technological and organizational knowledge to assess the duration and extent of the financial commitment needed to carry an innovative strategy through to success, the capital allocation process of the conglomerates had to be managed by the numbers—and all the more so the more divisions (often 40 to 70) (Chandler 1990a) that were incorporated into the conglomerate structure.

For example, in the first half of this century, top management used return on investment (ROI) as a statistical tool to enable them to keep track of divisional performance. But through their firm-specific knowledge of technology and organization, top managers as strategic managers could distinguish *subpar* ROI caused by inevitable developmental costs and gestation periods from *subpar* ROI caused by *subpar* managerial performance. In the conglomerates, however, a statistical tool that had been an *aid* to strategic decision making became a *basis* for strategic decision making, imparting an inevitable short-term bias to the evaluation of divisional *performance*.²¹ Middle managers who pursued innovative strategies under these conditions quickly learned (if they were still around to make use of the knowledge) that adaptive behavior was more often than not better received at the corporate headquarters. ²²

As the conglomerate movement gained steam in the 1960s, moreover, this short-term bias became accentuated by the purposes for which, and ways in which, acquisitions were made. Even when firms were acquired for cash, the conglomerators were always on the lookout for firms with low P/E ratios, which in itself sent a message to the managers of firms that wanted to avoid a hostile takeover that they had better take steps (such as raising dividends) that might convince the stock market to place a higher value on their shares. Alternatively, the potential targets could take on fixed-interest obligations in order to lower earnings or quickly merge with a friendly company. Long-term investment strategy gave way to short-term reactions to the rise of the market for corporate control.

21. See Chandler 1977, chap. 14; Johnson and Kaplan 1987.

22. For an excellent case study, see Holland 1989. See also Mass 1991.

Moreover, increasingly in the **1960s**, as the stock market reacted favorably to the increased number of conglomerates, takeovers occurred through the exchange of common stock. The movement was no longer constrained by the acquirer's internal sources of cash. High stock prices enabled the conglomerators to make more acquisitions. Through "pooling of interests" (the consolidation of the financial accounts of the parent and the acquired companies), the acquisition of companies with low P/E ratios produced a one-shot increase in earnings per share of the conglomerate, which in turn generated a higher P/E ratio for the conglomerate shares, which in turn permitted the conglomerate to use a given number of shares to make more acquisitions. In 1965, pooling of interests accounted for **about** 30 percent of all mergers; in 1968, more than 60 percent (The Editors of *Fortune* 1970, 144).

In early 1969, the editors of *Fortune* wrote **that** "practically every sizable U.S. corporation, whether it realizes it or not, is under scrutiny by some other corporation as a prospective acquisition" (141). For "**the nine out of ten** prospects [that] for a variety of reasons don't want to be taken over by the people who would like to take them over," the *Fortune* editors advocated taking on debt, but recognized that "such a countermeasure . . . is as yet unpopular" (141, 143). Nevertheless, despite the alleged unpopularity of leverage, the debt-equity ratio in U.S. manufacturing rose from **.40** in 1960 to **.48** in 1965 to **.72** in 1970 (U.S. Bureau of the Census 1989,928). The next best countermeasure, according to *the Fortune* editors, was to do whatever was required as soon as possible to boost the market price of the company's stock. And one way to boost market price quickly was for the frightened target to become an acquirer of low P/E companies itself (The Editors of *Fortune* 1970, 144).

All other things being **equal**, the higher earnings per share that resulted when a high P/E conglomerate acquired a low P/E company made it mandatory for the conglomerate to make more low P/E acquisitions if it wanted to show steady earnings growth and keep its P/E ratio **high, which** in turn often led to debt-financed acquisitions, which made the whole structure more financially vulnerable. Now, if all other things were **not** equal-if, for example, the conglomerates really generated "synergy" that boosted the long-run earning power of the acquired firms-the acquisition game might have generated economically beneficial results. The separation between financial control and organizational capability, however, produced the opposite effect. Because the middle managers in the conglomerate hierarchy were assigned a strategic function but were denied strategic power, the earnings of **the** massive conglomerates soon became worse, not better.

In February, 1969, as the conglomerate movement was reaching its peak, the editors of *Fortune* debated the pros and cons of the increasing proportions of debt in corporate capitalizations that had become part and parcel of the later

stages of the conglomerate movement. On the pro side, they pointed to the tax advantages of debt financing, the security of debt in an economy committed to full employment, and the low expense of debt financing in an inflationary age. They went on to say, however, that debt has its hazards, "particularly for a conglomerate whose year-to-year increases in reported earnings are in part dependent on the chain-letter effect of new acquisitions."

Times might not have to get very tough or competitive for such a company to find itself looking desperately for hard cash or the equivalent thereof to satisfy its bondholders and keep its creditors at bay. **Hard-**pressed conglomerates might, for example, be forced to spin off some of their divisions. Given plenty of competition, the great conglomeration movement of the 1960s 'might conceivably be the great **deconglomeration** movement of the 1970s. (The Editors of *Fortune* 1970, 108)

The research of David Ravenscraft and F. M. Scherer reveals that the editors of *Fortune* were prescient. Indeed, the *Fortune* editors undoubtedly underestimated just how "tough and competitive" the 1970s would be compared to the 1960s. Ravenscraft and Scherer estimate that roughly one-third of the acquisitions made in the 1960s and early 1970s were resold, typically under conditions of financial duress (1987, 190).

The longer run legacy of the buying and selling of companies in the 1960s and 1970s was the entrenchment of financiers in positions of strategic management in many U.S. industrial corporations (Hayes and Abernathy 1980). Of more importance than just the professional backgrounds of those at the top, however, were the incentives that the focus on adaptive strategy created for those rising through the ranks. As the middle managers of the conglomerates found out, with top management looking at the bottom line, rewards, including promotion within the managerial hierarchy, went to those who made the bottom line look good. Because of the internal dynamics of the managerial organization, therefore, over the long run the financial orientation of those at the top, and the firm's focus on adaptive investment strategies, tended to be reproduced. The heightened pressures emanating from the external economic environment—the competitive pressures of foreign competition and the financial pressures of the rise of the market for corporate **control**—served to reinforce this internal dynamic.

During the **1980s**, an even more fundamental problem arose for the development of a cadre of technologists who might implement, and ultimately direct, the innovative strategies of U.S. industrial enterprises in the future. The financial revolution has gone some way in undermining the incentives for capable college graduates to make career-long commitments to gaining expertise in technology and providing their services to developing the products and

processes of particular business enterprises. The earlier continuity and stability of the major U.S. industrial corporations meant that an educated entrant to the labor force could be quite certain that, over a period as long as some forty years, the company would be able and willing to offer employment security, new learning experiences, and upward mobility to its best performers .

The dismantling of corporations in the 1970s followed by the hostile takeovers and forced downsizing in the 1980s have rendered this career path highly uncertain (Nussbaum, et al. 1986). Even if the entry positions in technology are still in place, the long-run employment prospects for the entrant into all but the most committed companies are anything but secure.²³ At the same time, the very forces that jeopardize the long-run stability of the industrial corporation have created alternative employment opportunities that capable new entrants found difficult to ignore in the 1980s. True, Wall Street has been laying off personnel since October, 1987. Yet, in 1989, the average compensation (salary and bonus) for the more highly paid stratum of corporate finance and merger and acquisition specialists at the top ten securities firms was \$450,000 if they entered the firm in 1983, \$300,000 if they entered in 1986, just over \$200,000 if they entered in 1987, and **about \$140,000** if they entered in **1988** (*Wall Street Journal* 1989, C 1, C5). The average compensation for **the lower paid** specialists ranged from just under \$300,000 if they entered in 1983 to \$100,000 if they joined the firm in 1988. During the **1980s**, it was not only with the Japanese that U.S. industries could not compete.

Junk Bonds, Raiders, and LBOs

In the transition from innovative to adaptive strategies in U.S. industries, the conglomerate movement of the 1960s was a turning point in other ways as well. The restructuring of corporate balance sheets that occurred in the process of conglomeration appears to have contributed to the rise of another phenomenon that would have a great impact on corporate financial structure in the 1980s. Robert Taggart argues that, "prior to 1977, the public junk-bond market consisted almost entirely of 'fallen angels,' or bonds whose initial investment grade ratings were subsequently lower" (1988, 8). Connie **Bruck**

23. During the **1980s**, IBM has had to downsize, but it has been able to do so through attrition and "golden handshakes" so that it is unlikely that new entrants' perceptions of the prospects of career employment security with the company have been altered. Nevertheless, IBM has lost important older personnel who have decided to shake the company's golden hand. And, in the slowness of its attempt to shift out of mainframes as its main product, even IBM has been accused of being "preoccupied with meeting Wall Street's demands for quarterly results." See *Business Week*, December 18, 1989.

contends that some of these original junk bonds were the "Chinese paper" issued by conglomerates in the 1960s to finance acquisitions (1989, 27, 37-38, 44). Although we do not currently know the extent to which **the** original supply of junk bonds resulted from conglomeration, research into the issue is likely to show that conglomerate debt that had fallen below investment grade made a significant contribution.

It was not until the late **1970s**, when the efforts of Michael **Milken** to convince institutional investors to buy and sell the existing supply of junk bonds had already created a market in low-grade securities, that, in a more hospitable economic climate, the practice of issuing new junk bonds began. Hence, Taggart's data show the value of the junk bonds of U.S. corporations rising from \$6.6 billion in 1971 to \$8.2 billion in 1973, and then jumping up to \$11.1 billion in the recession of 1974. In 1975, defaults and recoveries decreased the value of outstanding junk bonds to \$7.5 billion. In the boom of the late **1970s**, the value of junk bonds rose quickly to reach \$15.1 billion in 1980.

By 1981, with \$17.4 billion of outstanding junk bonds, the market had grown large enough for Drexel **Burnham** to begin using them, first, to finance hostile takeovers and then to finance managers in leveraged buyouts (**LBOs**). Between 1982 and 1985, the value of outstanding junk bonds rose by well over 200 percent from \$18.5 billion to \$58.8 billion (Taggart 1988, 9). Although estimates vary concerning the amount of new issues that were used to finance takeovers and **LBOs** (14-15), it is clear that the growth of the **junk-bond** market, manifesting as it did the increased willingness of institutional investors to hold the low-grade, high-yield securities, made it possible for the market to absorb the new issues of junk bonds that financed bigger and bigger deals.

The hostile takeovers and leveraged buyouts of the 1980s appear to have been a major force in producing the decade's high yields on corporate stocks and bonds. Even more so than in the late **1960s**, virtually any company could conceivably become a takeover target. And, as in the late **1960s**, the target could defend itself either by increasing dividends in the hope of bolstering the market valuation of the company's stock or by taking on debt for the purpose of withdrawing stock from the market. Either defense forced the target to reduce its available cash flow. While it diminished its attractiveness as a takeover target, it eroded its financial commitment. Meanwhile, the very presence of the high-yield junk bonds, and the willingness of institutional investors to hold them, exerted an upward influence on interest rates generally and made even high-grade corporate bonds more risky just because of the possibility that junk would be loaded on top of them only to keep the raiders at bay.

The major corporate raids of the first half of the 1980s were attempts to

harvest the fruits of past investments without putting anything in their place. Hence, the focus was on corporations endowed with natural resources—oil reserves and timberland in **particular**—whose products can always command a market (even if at depressed prices) but are very costly to replace. To justify their own greed, the raiders and their proponents made the self-serving arguments that power hungry incumbent managers were making ill-conceived investment decisions that were wasting the shareholder's dollar; for example, that the declining price of oil made oil exploration unprofitable (Johnson 1986; Jarrell, Brickley, and Netter 1988). But the quantity of energy reserves or other natural resources available to a national economy (and the world economy) is too important an issue, both economically and politically, to be left to the raiders and to be driven by short-run fluctuations in market prices. In the absence of coherent national (or international) natural resource policies that transcend the profit motive, there is a strong argument that, whatever the motivations of the incumbent managers, the investments be made while the business organizations that are capable of making them are still intact.

Faced by the unprecedented power of the corporate raider in the market for corporate control from the early **1980s**, many incumbent managers learned to use debt financing as a defense. From 1980 through 1987 the majority of **LBOs** were divisional buyouts in which the middle managers of the troubled conglomerates reintegrated the strategic management function with the power of financial control. As such, these **LBOs** restored a necessary condition for undertaking and implementing innovative investment strategies that had been largely absent in the conglomerate organizational structure. In 1980, there were 47 divisional **LBOs** at a real average value (in 1988 U.S. dollars) of \$34.5 million; in 1983, 139 at a real average value of \$58.2 million; and in 1986, 144—the peak annual number for the **1980s**—at a real average value of \$180.7 million. From 1980 through 1987, there were a smaller number of more highly valued **LBOs** of public companies. For example, in 1986 there were 76 public company buyouts at a real average value of \$303.3 million. In that year, the ratio of the average value of public company to division buyouts was **1.7:1**—its lowest level in the decade. In both 1987 and 1988, however, the average value of public company **LBOs** in 1988 dollars was around \$480 million, about three times the average value of the divisional buyouts in those years. The number of public company buyouts jumped to 125 in 1988 from 47 in 1987 (Jensen 1989, 65).

LBOs may be a way for strategic managers to control the market for corporate control as a prelude to the pursuit of innovative investment strategies. **LBOs** can remove a company from the market for corporate control so that it can get on with its business of producing high-quality products at low unit costs. How well it can get on with its business depends on the costs of

going private relative to its cash flow and the extent to which the **owner-managers** have an interest in building the company up rather than running it down. A recent study of **LBOs** between 1981 and 1986 that focuses on **plant-level economies** as well as trends in company R&D expenditures demonstrates that, for the first half of the 1980s at least, **LBOs** were undertaken for the purpose of getting a company back on track by protecting the organization from the market for corporate control (Lichtenberg and Siegel 1989).

The very need for companies to undertake these defensive **LBOs** was created by the preceding rise of the market for corporate control. As a result, even when the pursuit of innovation motivates an LBO, the taking on of unrelenting debt service is both expensive and inherently unstable. The problems inherent in using **LBOs** to restructure U.S. industry might not be so severe if U.S. companies were just competing among themselves. The problem is that, by and large, they are not. They are competing with business organizations abroad that, in general, do not have to appease the portfolio investor in order to do what an industrial enterprise is supposed to **do**—generate high-quality products at low unit costs.

The purpose of the high-value public company **LBOs**—particularly those initiated not by career managers but, rather, by what Michael Jensen calls **LBO associations** such as Forstman-Little or **Kohlberg, Kravis, and Roberts**—is not to insulate a going concern from the market for corporate control but, as Jensen puts it, “to disgorge the free cash flow” from companies that have allegedly “matured” (Jensen 1989). Financed largely by the issue of new junk bonds, the strategic managers of these offensive **LBOs** seek to make good on the high cost of purchase that results from the active bidding for, and speculation in, stocks that accompanies buyout attempts. Their gamble is that they can reduce the **LBO** debt by putting some divisions of the company up for sale and service the remainder of the debt by making the cash flow of the remaining divisions as “free” from other claims as possible. The sold-off divisions could well fall into the hands of innovative managers, but, with the escalation of **LBO** purchase prices that attended the grabs for corporate control in the later **1980s**, the asking prices tended to be at levels that managers who would pursue innovative strategies could not afford. The speculative character of the offensive **LBOs** that dominated the late 1980s is reflected in a sharp decline of the credit quality of the new issues of junk bonds (**Wigmore** 1989; *Business Week* 1990, 68–70). Whereas many of the early 1980s **LBOs** suppressed the market for corporate control to enable a well-managed company to invest for the future, the **LBOs** of the mid-1980s represent the ultimate triumph of the market for corporate control. What those **LBOs** did was to give the holders of debt, rather than workers, managers, suppliers, or customers, the right to capture today’s returns on yesterday’s innovations.

How We Save Our Money

In historical perspective, the corporate raiders of the 1980s were capitalizing on a transformation of the relationship between finance and industry in the United States that had been underway since the 1950s. Paving the way for the financial revolution of the 1980s over the previous three decades was the growing tendency of strategic managers of U.S. industrial corporations to reap their own personal rewards through participation in the market for corporate control rather than through enhancing the value-creating capabilities of the companies that they were entrusted to manage. But even these managers did not themselves create the opportunities for gain through the securities markets. Underlying the financial transformation of the last four decades is an even more profound institutional problem in the nature of U.S. capital markets that will continue to weaken the financial commitment and erode the organizational capability of U.S. industry, even after (as appears to have been the case by the late 1980s) the current wizards of finance have pushed their money magic as far as it will go.

During the 1970s and 1980s it became fashionable for critics of the performance of the U.S. economy to decry the unwillingness of U.S. citizens to save. What they really meant to say (but rarely did) was that, in contrast to the era of U . S . industrial dominance when U . S . Keynesians encouraged us all to spend, in this era of trade deficits we are spending too much money on goods and services produced abroad. What is more, we borrow against the future to buy goods that do not even generate jobs or develop productive resources in the U.S. economy. To understand the "savings" problem in the United States is not, therefore, just a matter of too much consumption. It is also a matter of how Americans *spend* their money. More than that, **the** "savings" problem is a matter of how they save it. Underlying the ability of those U.S. households that do save in one way or another to extract the kinds of yields on corporate securities displayed in table 1 is the buying and selling power of the institutional investor.

In 1960, institutional investors owned 17.2 percent of the value of shares and accounted for 24.3 percent of the volume of trading on the New York Stock Exchange. By 1982, their share of the equity value had doubled to over one-third, while their share of trading had risen by about three and a half times to 83.8 percent of New York Stock Exchange volume (Hayes 1984, 52). As the institutional ownership of U.S. corporate assets became more concentrated, the turnover of shares on the New York Stock Exchange rose from 12.0 percent in 1960 to 54.0 percent in 1985, while trades of over 10,000 shares increased from 3.0 percent in 1965 to 52.0 percent in 1985 (Light and **Perold** 1987, 108; Lowenstein 1988, chap. 3). This increase in trading reflects a search for higher yields—a search that is driven by increasingly intense

competition among the various types of institutional investors (as well as by the money managers within each type) for the savings of the U.S. household.

Leading the search for higher yields were the mutual funds that, from the **1950s**, sought to capitalize on the prolonged boom in stock prices (Brooks 1973, chap. 6; Kaplan and Welles 1969). During the **1950s**, common stocks accounted for 85.0 percent of the assets of mutual funds, as compared to about 30.0 percent of the assets of pension funds and only 3.0 to 4.0 percent of the assets of life insurance companies. Through rapid trading of large blocks of stock and the locking in of capital gains in advance of expected stock price declines, mutual fund managers sought to generate higher returns than could be secured from a more stable portfolio. During the **1960s**, the mutual funds played an important role in the conglomeration movement by buying up blocks of stock that were rumored to be in play and selling them to the raiders at a higher price (The Editors of *Fortune* 1970, 142). Yet in 1970, mutual funds only accounted for 1.3 percent of the total funds supplied to U.S. money and capital markets, compared to 8.7 percent by federal loan agencies and 31.3 percent by commercial banks. By 1986, mutual funds supplied 17.4 percent of all funds to these markets, slightly more than federal loan agencies and **just** 1.7 percent less than commercial banks. Common stocks made up only 36.0 percent of mutual fund assets in 1986 because the markets in stocks and bonds, which had previously been highly segmented between individual and institutional investors, had become highly integrated (ACLI 1987, 37).

The success of the mutual funds in generating higher yields led pension fund managers to increase their holdings of common stock—from 30 percent in 1955 to 63 percent in 1968 and around 50 percent in 1986. In 1955, pension funds owned 2 percent, and households 91 percent, of all outstanding equities in the United States; by 1985, the pension fund share had risen to 22 percent and the household share had fallen to 60 percent. Insurance companies also gradually increased their holdings of common stocks so that, by the **1970s**, they had more than doubled the proportion of their assets held in equities (ACLI 1987, 36).

Share holding is no longer fragmented in the United States; millions of U.S. households have turned to concentrated investing power to maximize their existing wealth and secure their futures. In general, these households know less than they ever did (which was never much) about how or why the companies in which they own securities are able to generate the returns that accrue to their investment portfolios. The financial institutions that serve these households must compete for their funds by showing high returns on a regular basis and will shift their portfolios in and out of securities to do so (Lowenstein 1988, chap. 3). The managers of pension funds can generally take a longer run perspective on the returns to their portfolios than can the mutual

fund managers. Nevertheless, even the pension funds (or insurance companies) are loathe to pass up the gains that, in a speculative financial era, can be made by taking quick capital gains, and their managers may feel under personal pressure to match the performance of the more speculative institutional investors. The more the institutional investors focus on the high returns to their financial portfolios that are needed to attract household savings and on the constant restructuring of their portfolios to maximize yields, the more their goals represent the antithesis of financial commitment. **Driven** by the need to compete for the public's savings by showing superior returns, portfolio managers who invest for the long term may well find themselves looking for new jobs in the short term.

Since the late **1960s**, Wall Street has accommodated the rise of the institutional investor by increasingly turning from its traditional investment banking function to trading in securities, both stocks and bonds.²⁴ **The** integration of **the** stock and bond markets in the portfolios of institutional investors meant **that** high yields achieved through trading in stocks created pressure for bond trading to return similar yields (adjusting for risk), and higher yields achieved in these secondary markets put pressure on the rates of new bond issues. The rise of **the** junk-bond market in the **mid-1970s**, itself made possible by the institutional investors' search for higher yields, in turn put pressure on the stock market to generate higher short-term returns. The yields secured by portfolio investors, in turn, made it impossible for commercial banks, mutual banks, and savings and loan companies to raise funds on the basis of the old rules of the financial game. Financial deregulation in the late 1970s led these institutions to join the search for higher short-term yields. By the early **1980s**, all these changes in the structure of U.S. financial markets, assisted by (as Connie **Bruck** has shown) considerable planned coordination by Michael **Milken** and company (**1989**), led to the rise of the junk **bond**-financed corporate raider. The market in corporate control had been unleashed.

For economists who believe in the efficiency of market coordination, both the integration of financial markets and the rise of the market for **corporate** control represent the coming of age of U.S. capitalism. It is good for the **disposable** income of the portfolio investor, both U.S. and foreign. But it is not **good** for **industrial** innovation. As U.S. industry faced its greatest competitive challenges in the 1970s and **1980s**, industrial enterprises **required** more, not **less**, **financial** commitment. Yet, as the institutional investors succeeded in **their** search for higher yields, less financial **commitment** is what U.S. industry got.

24. See Auletta 1986, Carrington 1987.

New Ventures and Alternative Opportunities

So much for going concerns. What **about** new ventures? Perhaps what we are seeing is the movement of capital out of old firms and industries into new ones. What else is a highly liquid capital market for except to ensure that economic resources flow to their most productive uses? Doesn't economic theory tell us that capital immobility is bad, that capital mobility is good?

That is what a particular brand of economic theory tells us. But for understanding how business organizations create value and why some national economies are better at value creation than others, it is a brand of theory that obscures more than it illuminates (Lazonick 1991). If we transcend the free-market ideology from which neoclassical economic theory derives its inspiration and look at the reality of mobile versus committed finance in the **1980s**, we can see that the resources that are flowing out of the major U.S. going concerns are insufficiently committed to serve the financial needs of new ventures.

In industries in which product and process innovation takes place on the basis of already developed technologies, new entrants do not arise without a concerted developmental effort within a protected economic environment—as was the case, for example, in the rise of the Japanese automobile producers and electronics manufacturers. Indeed, once Britain had experienced the world's first industrial revolution, a period of state-protected or subsidized development in which high fixed costs could be transformed into low unit costs became essential for every major industry in every successful capitalist economy, including the United States.

It is in industries that are developing radically new **technologies**—microelectronics and biotechnology are the most prominent examples from recent U.S. history—that new ventures stand the greatest chance of success without **the** benefit of tariff protection or public subsidy. But, precisely because these enterprises are attempting radical innovation, they have a great need for financial commitment. In the post-World War II decades, the United States had a small but vibrant venture-capital industry, funded mostly by already rich individuals, but occasionally by the more financially independent and innovative going concerns that had themselves developed related **technology**.²⁵ Private venture capitalists in particular understood that the innovation process required sustained cooperative efforts by a team of people with unique ideas and skills.

The venture capitalist's role was to perceive the uniqueness of these ideas and skills and the commitment to the development process of the people who possessed them, and then to provide financial commitment until the **innova-**

25. See Wilson 1986, chaps. 1-10; Fast 1977; Florida and Kenney 1990.

tion was high quality enough and low cost enough to generate sufficient earnings to sustain the enterprise as a going concern. If the innovative investment strategy made the transition from new venture to going concern, then the venture capitalists (**along** with any of the new venture's technologists who held ownership stakes in the enterprise) could reap their returns by selling their shares to the public. By this time, the successful enterprise would have built up a managerial structure that could continue to plan and coordinate enterprise strategy. The very emergence of the new venture as a successful going concern would lead stockholders to look for longer term (by the portfolio investor's standards) capital gains. Growth-oriented shareholders would be willing to hold stock with a high P/E ratio without insisting on excessively high dividends to boost short-term yields. Strategic managers would gain financial control, and with the first-mover advantage of its accumulation of organizational capability, the firm would continue to expand its market share and emerge as a dominant force in its industry.

The last major wave of new ventures that emerged as successful going concerns in the United States took place in computer-related fields and biotechnology in the 1970s (Wilson 1985, chap. 1). At first, the process of rewarding the creators of the innovative going concerns by taking the company public was on course. But, by the early **1980s**, the involvement of institutional investors in the new venture process was causing the process to break down.

During the **1970s**, in their search for higher yields, those institutional investors that could think longer term than the mutual funds—the pension funds, insurance companies, universities, foundations, and industrial corporations with surplus funds—began to take shares in venture capital funds. The involvement of pension funds in the supply of venture capital became possible when a 1978 U.S. Department of Labor interpretation of the Employee Retirement Income Security Act (passed in 1974) indicated that pension funds could make investments that were riskier than holding blue-chip stocks and bonds. From 1978 to 1980, about \$500,000 were added to the venture capital pool in the United States annually. In 1981, the new funding climbed to about \$1.0 billion, in 1982 to about \$1.5 billion, and then in 1983 tripled to about **\$4.5 billion**. From 1984 through 1987, the supply of new capital to the venture capital funds ranged from \$3.3 billion (1985) to \$5.0 billion (in **1987**), but fell off sharply to \$2.0 billion in 1988 and has since continued to decline (*New York Times* 1989, Sec. 3, 1, 6).

By 1983, the pension funds were the major source of venture capital, supplying 31 percent of the total outstanding. Individuals and families provided 21 percent, foreign investors 16 percent, insurance companies and corporations 12 percent each, and endowments and foundations 8 percent. By 1988, the pension fund share of the total pool had risen to 46 percent, while

foreign investors supplied 14 percent, endowments and foundations 12 percent, corporations 11 percent, insurance companies 9 percent, and individuals and families only 8 percent. By 1989, the venture capital pool in the United States had grown to \$31 billion, over ten times the \$3 billion available in 1979 (and indeed throughout the 1970s [3, 1, 6]).

Looking at these numbers, the rapid growth of the supply of venture capital in the 1980s would seem to demonstrate the power of a free enterprise system based on financial mobility to allocate capital to its best alternative uses. Unfortunately, in large part *because of* the rapid flow of money into venture-capital funds, the venture-capital industry in the United States is in trouble. The New York *Times* article from which the data in the preceding paragraphs are drawn quotes William Sahlman of the Harvard Business School as saying “for the first time in history a large number of venture capitalists will lose money” (1).

The problems began when new ventures such as Genentech in biotechnology and Lotus Development in computer software hit it big in the early 1980s. Just as in the early 1960s some mutual funds had speculated in the “glamour” stocks of growth companies such as Polaroid and Xerox, driving up P/E ratios, so in the early 1980s the institutional investors (and not just mutual funds) began trading-but in a much bigger way than two decades earlier-in the stocks of virtually any new high-tech company that demonstrated some innovative potential (Brooks 1973, chap. 6; Wilson 1985). At the same time, pension funds in particular began not only to **buy** high-tech stocks but also to supply funds to the new ventures that hoped to eventually reap the rewards of going public. This supply-side role of the institutional investors had no **counterpart** in earlier periods of radical innovation. The result of the rapidly growing supply of new venture capital combined with the stock market speculation in high-tech public offerings in the early 1980s was a flood of new venture capitalists into the venture-capital industry. Soon there were too many venture capitalists trying to start up too many companies.

Into the first half of the 1970s the U.S. venture-capital industry had been mainly in the hands of **Laurance** Rockefeller, J. H. Whitney, and the disciples of Georges **Doriot**. In terms of its investment pool, the venture-capital industry stagnated throughout the early 1970s and grew only modestly in the last years of the decade. There were 2 new funds (which raised a total of \$20.2 million) in 1977, 5 in 1978, 7 in 1979, and 10 in 1980. In 1981-83, however, 100 new funds came on the scene, and by 1989 there were more than 650 venture-capital firms in the United States (Wilson 1985, 107).

Drawn into the industry by the increasing willingness of portfolio investors to hold shares in companies that had often not even developed, let alone commercialized, a new product, the venture-capital firms vied with one another not so much for funds (which were no longer in scarce supply) but for

the technologists and technologies of each other's new ventures. Many venture capitalists became what John Wilson aptly describes as "vulture capitalists" (chap. 13).

From the perspective of the **mid-1980s**, John Wilson—a *Business Week* editor—summarized how those industrialists and observers who understood that innovation requires organizational continuity viewed the transformation of the industry. The "two sweeping charges against the venture capital community" were

that by draining a few successful companies of their most productive managers and engineers, by pirating their technology, and by disrupting key departments and projects, venture capitalists damage the ability of those companies to innovate and to compete in international markets; that by funding excessive numbers of similar companies, many with less than outstanding leadership, they are wasting money and talent, adding little to the progress of technology, and artificially creating overcompetitive situations where no participant can make money. (189-90)

As a result, by 1984, "company after company fell short of its targets, disappeared into bankruptcy, or dragged out a miserable existence as 'living dead,' soaking up money and attention but never really succeeding" (196). Yet, after a drop in the supply of new money to the venture-capital industry in 1984 and 1985, the institutional investors, and particularly the pension funds, started pouring money back in. As the supply was cut back in 1988 and 1989 and as the unprofitability of the venture-capital industry continued, it was not even clear how much of the \$3.1 billion of "venture capital" was being used as venture capital. According to *the New York Times* report,

critics say the huge amount of money and pressure from institutional investors have made venture capitalists less venturesome, and more short-term oriented, much like publicly traded companies that answer to Wall Street every quarter. Rather than invest small chunks of money to start companies, many put large chunks in more mature companies, which are less risky and closer to going public, and in leveraged buyouts, which provide quicker, and often bigger returns.

The article goes on to quote one venture capitalist as saying, "It's getting more like the money management business" (1989, 6).²⁶

If the money that the institutional investors have put in the venture-capital industry has been more of a problem than a solution for industrial

26. See also Gallese 1990.

innovation in the United States, we should not expect that the high yields on the securities of going concerns that the institutional investors are distributing to their main clients—those U.S. households that save—is being reallocated to any more efficient uses. Judging from U.S. trade statistics for the **1980s**, the increases in the disposable income that the higher yields generate are being allocated to Matsushita VCRs, Hitachi televisions, Nintendo entertainment systems, Sony videocameras, a trade-in for an upmarket Toyota—you name it.

Hence we see the leap of faith made by proponents of the market for corporate control who advise that, for the sake of capital mobility (returning value to the shareholders), “mature” firms should “disgorge their free cash flow.” Jensen defines “free cash flow” as the “cash flow in excess of that required to fund all investment projects with positive net present values when discounted at the relevant cost of capital” (1989, 66). The problem is not **with** the definition but with the neoclassical economist’s static view of the world. For the proponent of the market for corporate control, to ignore the dynamic, historical *processes* that determine a firm’s projected revenues and cost of capital can serve his or her purposes well. From the dynamic, historical perspective that I have presented in this essay, the “relevant cost of capital” of which Jensen speaks is the high rate of interest on corporate debt that the financial revolution has permitted portfolio investors to extract from going concerns. At the same time, strategic managers’ revenue projections from new investment projects that enter into “net present values” must take into account the weakening of financial commitment, and the consequent erosion of organizational capability, that the rise of the market for corporate control has wrought.

Jensen goes on to argue that “for a company to operate efficiently and maximize value, free cash flow must be distributed to shareholders rather than retained.” As a “vivid example” of the failure to do so, he points to

the senior management of Ford Motor Company, which sits on nearly \$15 billion in cash and marketable securities in an industry with excess capacity. Ford’s management has been deliberating about acquiring financial service companies, aerospace companies, or making some other multibillion-dollar diversification move—rather than deliberating about effectively distributing Ford’s excess cash to its owners so they can decide how to reinvest it. (66)

Assume that Ford’s strategic managers had taken Jensen’s advice. If Ford’s shareholders had not used all of the \$15 billion dividend just to buy more consumer goods, how might we have expected that they would have invested the rest? Undoubtedly they would have put some of it into mutual

funds, which would of course have stood ready to lend the money back to Ford, should Ford's senior management have discovered that, in order to maintain market share and contain unit costs, they have to keep investing not only in their own company, but also in suppliers and dealers. For they might have noticed that their Japanese rivals were making **such** investments, not only in Japan but also in the United States.²⁷ But, with its equity base depleted by a massive dividend, Ford's managers would have found it impossible to borrow at investment-grade rates. The suppliers of junk bonds (whoever it is that steps into the breach created by the bankruptcy of Drexel **Burnham** and the jailing of Michael **Milken**) would find a new potential customer. Over the long run (say by 1995), the Ford Motor Company, the premier U.S.-based automobile producer of the **1980s**, would be on the verge of bankruptcy, like Chrysler (the second-best U.S.-based producer in the 1980s) was back in 1978. But, unlike 1978, in 1995 the federal government would **find** itself swamped by the public and private borrowing spree of the 1980s. Still trying to recover from its role as guarantor of the savings and loans as well as from the growing defaults on its student loan **guarantees** (which were made to keep the U.S. system of higher education afloat without increasing the federal budget deficit) and besieged by requests for loan **guarantees** from a host of collapsing junk bond-financed companies that were the present of the 1980s to the **1990s**, Congress would be in no position (and certainly in no mood) to provide loan guarantees to aid Ford's **recovery**.²⁸

To come back from the future, the very threat of shareholder power exercised through the market for corporate control may well induce Ford's strategic managers to undertake imprudent diversification that would reduce financial commitment to what the company can **do** best-make and sell cars. A superior alternative would be for Ford to manage its \$15 billion in surplus funds in a way that makes its financial reserves grow. When new major investments in making and selling cars must be made, the company would then have the funds available. The Japanese call such money management of surplus funds *zai-reku*. As a recent book on Japanese corporate finance recognizes, "the greater the funds a corporation controls, the better its potential to benefit from *zai-teku*." The authors go on to relate how "the Toyota Motor

27. For example, Toyota has recently begun to **invest in** dealerships in the Midwest where the U.S. based companies had been most successful in maintaining their market share (*New York Times*, December 15, 1989, D1). *Business Week* reports that "to stay *in* the race [against the Japanese], Chrysler is planning to spend \$15 billion on products and plants within five years" (December 17, 1989, 46).

28. On the role of government loan guarantees in the successful bailout of Chrysler, see Reich and Donahue (1985). On the potential magnitude of student loan defaults, see "The \$5 Trillion **Schock**," *Newsweek*, December 18, 1989, 26-28.

Corp. revised its earnings for the business period ending July, 1987, from ¥350 billion to ¥380 billion.” Quoting from the *Japan Times*:

Toyota officials attributed the upward revision to massive income resulting from its securities investment of surplus funds totaling ¥1.4 trillion. . . . Toyota’s sophisticated portfolio management yields about 9 percent of its surplus cash each year. This amounts to about ¥126 billion of annual income. (Ballon and Tomita 1988, 143)

Jensen has argued that Japanese firms are beginning to suffer from the U.S. disease—a failure to “disgorge their free cash flow.” Indeed, he specifically cited the case of Toyota as a Japanese company that is

flooded with free cash flow far in excess of [its] opportunities to invest in profitable internal growth. . . . Toyota, with its cash hoard of \$10.4 billion, more than 25 percent of its total assets, is commonly referred to as Toyota Bank. (1989, 73)

“In short,” Jensen concluded, “Japanese managers are increasingly unconstrained and unmonitored.” For this avid proponent of the market for corporate control, Japanese competitive advantage is only transitory. The disease of “managerial capitalism” will afflict Japan, just like it has afflicted the United States.

[Japanese managers] face no effective internal controls, little control from the product markets their companies already dominate, and fewer controls from the banking system because of self-financing, direct access to the capital markets, and lower debt ratios. Unless shareholders and creditors discover ways to prohibit their managers from behaving like U . S . managers, Japanese companies will make uneconomic acquisitions and diversification moves, generate internal waste, and engage in other value-destroying activities. The long-term result will be the growth of bureaucracy and inefficiency and the demise of product quality and organizational responsiveness—until the waste becomes so severe it triggers a market for corporate control to remedy the excesses. (73-74)

If a “free-market” economist such as Jensen fails to understand the role that the rise of the market for corporate control has played in the long-term decline of U.S. industry, we should not be surprised that he understands little about the sources and durability of Japan’s relatively recent industrial success. As I have already mentioned, the strategic managers of Japan’s dominant

industrial enterprises are highly disciplined, not by portfolio investors, but by the participants in the enterprise who really contribute to the process of value creation—the organization's employees. Indeed, the Japanese strategic manager is subject to organizational discipline precisely because he is first and foremost a member of the organization; his own career success depends on the success of the organization as a whole. There are no stock options in Japan, and even if the manager owns shares, his membership in the organization means the shares are not for sale (**Ballon** and Tomita 1988). As a result, his sole interest is in building organizational capability. And there is no market for corporate control to erode the financial commitment that is required for him to do so.

The real irony is that neither the Japanese strategic manager nor the Japanese business organization is wholly new to the history of capitalist development. For the historical significance of managerial capitalism is that there was a time when the strategic managers of U.S. industrial corporations were also disciplined by their membership in their own business organizations and saw their own individual success as dependent on the long-run growth and stability of the organization as a whole. That also happened to be a time when U.S. industry dominated the international economy.

The organizational basis of Japan's rise to industrial leadership over the past few decades has been a more far-reaching elaboration of the institutions of managerial capitalism that provided the basis for U.S. dominance during the first half of this century (Lazonick 1991, chap. 2; 1990, chaps. 9-10). Through Japan's enterprise-group system, the planned coordination of the specialized division of labor extends across legally distinct firms to ensure that the activities of all participating firms coalesce in the pursuit of common strategic goals. Within dominant Japanese firms, membership in the enterprise extends further down the organizational hierarchy than is generally the case in the United States to include blue-collar workers, enabling management to ensure that the skills and efforts of shop-floor workers further rather than impede organizational goals. The formidable productive power of **U.S.** managerial capitalism earlier in the century rested on a high degree of collective organization—although confined largely to the managerial structure of the particular firm. In building even more powerful and enduring collectivities that we call business organizations, the Japanese have recognized the historical significance of managerial capitalism.

To the detriment of economic analysis, most U.S. economists have not recognized the historical significance of managerial capitalism. Indeed, rather than enhance the productive capabilities inherited from managerial capitalism for the sake of future prosperity, the free-market orientation of the U. S . polity and economy in the 1970s and 1980s has helped to put the historical significance of managerial capitalism out of sight and out of our mind.

BIBLIOGRAPHY

- Abegglen, James C., and George Stalk, Jr. 1985. *Kaisha, the Japanese Corporation*. New York: Basic Books.
- Abernathy, William. 1978. *The Productivity Dilemma*. Baltimore: Johns Hopkins University Press.
- American Council of Life Insurance (A.C.L.I.) 1987. *Life Insurance Fact Book Update 1987*. New York: Institute of Life Insurance.
- Auletta, Ken. 1986. *Greed and Glory on Wall Street*. New York: Random House.
- Baran, Paul A., and Paul M. Sweezy. 1966. *Monopoly Capital*. New York: Monthly Review Press.
- Ballon, Robert J., and Iwao Tomita. 1988. *The Financial Behavior of Japanese Corporations*. Tokyo: Kodansha International.
- Bernstein, Michael. 1987. *The Great Depression: Delayed Recovery and Economic Change in America, 1929-1939*. Cambridge: Cambridge University Press.
- Black, Fischer. 1976. "The Dividend Puzzle." *Journal of Portfolio Management* 28: 1-15.
- Brooks, John. 1973. *The Go-Go Years*. New York: Weybright and Talley.
- Bruck, Connie. 1989. *The Predators' Ball: The Inside Story of Drexel Burnham and the Rise of the Junk Bond Raiders*. New York: Penguin.
- Carosso, Vincent P. 1970. *Investment Banking in America*. Cambridge, Mass.: Harvard University Press.
- Carosso, Vincent P. 1987. *The Morgans Private International Bankers, 1854-1913*. Cambridge, Mass.: Harvard University Press.
- Carrington, Tim. 1987. *The Year They Sold Wall Street*. New York: Penguin.
- Chandler, Alfred D., Jr. 1954. "Patterns of American Railroad Finance, 1830-1850." *Business History Review* 28:248-63.
- Chandler, Alfred D., Jr. 1965. *Railroads: The Nation's First Big Business*. New York: Harcourt, Brace and World.
- Chandler, Alfred D., Jr. 1966. *Strategy and Structure: Chapters in the History of the Industrial Enterprise*. Garden City, N.Y.: Doubleday.
- Chandler, Alfred D., Jr. 1977. *The Visible Hand: The Managerial Revolution in American Business*. Cambridge, Mass.: Belknap Press.
- Chandler, Alfred D., Jr. 1985. "From Industrial Laboratories to Departments of Research and Development." In *The Uneasy Alliance: Managing the Productivity-Technology Dilemma*, ed. Kim B. Clark, Robert H. Hayes, and Christopher Lorenz. Boston: Harvard Business School Press.
- Chandler, Alfred D., Jr. 1990a. "The Enduring Logic of Industrial Success." *Harvard Business Review* 68: 130-40.
- Chandler, Alfred D., Jr. 1990b. *Scale and Scope: The Dynamics of Industrial Capitalism*. Cambridge, Mass.: Belknap Press.
- Channon, Derek. 1973. *The Strategy and Structure of British Enterprise*. Boston: Division of Research, Graduate School of Business Administration, Harvard University.
- Clark, Kim B., et al. 1985. *Uneasy Alliance: Managing the Productivity Technology Dilemma*. Cambridge, Mass.: Harvard Business School Press.

- Cohen, Stephen S., and John Zysman. 1987. *Manufacturing Matters: The Myth of the Post-Industrial Economy*. New York: Basic Books.
- Crystal, Graef S. 1991. In *Search of Excess*, New York: Norton.
- DeLong**, Bradford J. 1989. "Did J. P. Morgan's Men Add Value?: An Historical Perspective on Financial Market Innovation." Cambridge, Mass.: Harvard University. Photocopy.
- Dertouzos, Michael L., Richard K. Lester, and Robert M. Solow. 1989. *Made in America: Regaining the Productive Edge*. Cambridge, Mass.: MIT Press.
- Doerflinger**, Thomas, and Jack Rivkin. 1987. *Risk and Reward: Venture Capital and the Making of America's Great Industries*. New York: Random House.
- Donaldson, Gordon. 1984. *Managing Corporate Wealth: The Operation of a Comprehensive Financial Goals System*. New York: Praeger.
- Economic Report of the President* 1989. Washington, D.C.: GPO.
- Editors of *Fortune*. 1970. *Conglomerate Commotion*. New York: Viking.
- Edwards, Richard C. 1975. "Stages in Corporate Stability and the Risks of Corporate Failure." *Journal of Economic History* 35:428-57.
- Ellsworth, Richard R. 1985. "Capital Markets and Competitive Decline." *Harvard Business Review* 63:58-59.
- Fast, Norman D. 1977. *The Rise and Fall of Corporate New Venture Divisions*. Ann Arbor: UMI Research Press.
- Florida, Richard and Martin Kenney. 1990. *The Breakthrough Illusion: Corporate America's Failure to Move From Mass Production to Innovation*. New York: Basic Books.
- Foley, Duncan K., and William Lazonick. 1990. "Corporate Takeovers and the Growth of Productivity." Barnard College. Photocopy.
- Galbraith, John Kenneth. 1980. *The Great Crash 1929*. New York: Avon.
- Gallese, Liz Roman. 1980. "Venture Capital Strays Far From Its Roots." *The Business World, New York Times Magazine*. April 1, pt. 2.
- Goldsmith, Raymond W. 1958. *Financial Intermediaries in the American Economy Since 1900*. Princeton: Princeton University Press.
- Gordon, Robert Aaron. 1974. *Economic Instability and Growth: the American Record*. New York: Harper and Row.
- Hannah, Leslie. 1983. *The Rise of the Corporate Economy: The British Experience*. 2d ed. London: Methuen.
- Hayes, Robert H., and William Abernathy. 1980. "Managing Our Way to Economic Decline." *Harvard Business Review* 58:4.
- Hayes, Samuel, III. 1984. "Investment Banking: Commercial Banks' Inroads." *Economic Review* (Federal Reserve Bank of Atlanta), 52:50-59.
- Herman, Edward S. 1981. *Corporate Control, Corporate Power*. Cambridge: Cambridge University Press.
- Holland, Max. 1989. *When the Machine Stopped: A Cautionary Tale From Industrial America* Boston: Harvard Business School Press.
- Hounshell, David, and John K. Smith. 1988. *Science and Corporate Strategy: Du Pont R&D 1902-1980*. Cambridge: Cambridge University Press.
- Jarrell**, Gregg, James **Brickley**, and Jeffrey Netter. 1988. "The Market for Corporate Control: The Empirical Evidence Since 1980." *Journal of Economic Perspectives* 2, no. 1: 49-68.

- Jensen, Michael C. 1989. "Eclipse of the Public Corporation." *Harvard Business Review* 67:73-74.
- Jensen, Michael C. "Takeover: Their Causes and Consequences." *Journal of Economic Perspectives* 2, no. 1: 21-48.
- Johnson, Moira. 1986. *Takeover: The New Wall Street Warriors: the Men, the Money, the Impact*. New York: Arbor House.
- Johnson, Thomas H., and Robert Kaplan. 1987. *Relevance Lost: The Rise and Fall of Management Accounting*. Boston: Harvard Business School Press.
- Kaplan, Gilbert E., and Chris Wells, eds. 1969. *The Money Managers*. New York: Random House.
- Keehn, Richard M., and Gene Smiley. 1988. "Margin Purchases, Brokers' Loans and the Bull Markets of the Twenties." *Business and Economic History* 2d ser., 17.
- Koch, Albert R. 1943. *The Financing of Large Corporations, 1920-1939*. New York: National Bureau of Economic Research.
- Lamoureaux, Naomi. 1986. "Banks, Kinship, and Economic Development: The New England Case." *Journal of Economic History* 46:647.
- Lazonick, William. 1986. "Strategy, Structure, and Management Development in the United States and Britain," in *Development of Managerial Enterprise*, ed. Kesaji Kobayashi and Hidemasa Morikawa. Tokyo: University of Tokyo Press.
- Lazonick, William. 1990. *Competitive Advantage on the Shop Floor*. Cambridge, Mass.: Harvard University Press.
- Lazonick, William. 1991. *Business Organization and the Myth of the Market Economy*. Cambridge: Cambridge University Press.
- Levin, Doron P. 1989. "New Toyota Target: The Midwest." *New York Times*, December 15.
- Lewellen, Wilbur G. 1968. *Executive Compensation in Large Industrial Corporations*. New York: National Bureau of Economic Research.
- Lewellen, Wilbur G. 1971. *The Ownership Income of Management*. New York: National Bureau of Economic Research.
- Lichtenberg, Frank, and Donald Siegel. 1989. "The Effects of Leveraged Buyouts on Productivity and Related Aspects of Firm Behavior." NBER Working Paper no. 3022, December.
- Light, Jay O., and Andre F. Perold. 1987. "The Institutionalization of Wealth: Changing Patterns of Investment Decision Making." In *Wall Street and Regulation*, ed. Samuel L. Hayes III. Boston: Harvard Business School Press.
- Light, Larry. 1990. "The Junk-Bond Time Bombs Could Go Off." *Business Week* 16:68-70.
- Lintner, John. 1956. "The Distribution of Incomes of Corporations Among Dividends, Retained Earnings, and Taxes." *American Economic Review* 46:97-118.
- Livesay, Harold C. 1975. *Andrew Carnegie and the Rise of the Big Business*. New York: Little, Brown.
- Lowenstein, Louis, et al. 1988. "The American Corporation and the Institutional Investor: Are There Lessons from Abroad?" *Columbia Business Law Review* 3:739-49.
- Lowenstein, Louis. 1988. *What's Wrong With Wall Street*. Reading, Mass: Addison-Wesley.

- Lowenstein, Louis. 1991. *Sense and Nonsense in Corporate Finance*. Reading: Addison-Wesley.
- Marginson, Paul, et al. 1988. *Beyond the Workplace: Managing Industrial Relations in the Multi-Establishment Enterprise*. New York: Basil Blackwell.
- Markoff**, John. 1989. "A Prescription for Troubled IBM." *New York Times*, December 10, **secs.** 3-4.
- Mass, William. 1991. "The Decline of a Technological Leader: Capability, Strategy, and Shuttleless Weaving 1945-74." *Business and Economic History*. 19.
- Matsumoto, **Toru**. 1989. *Japanese Stocks: A Basic Guide for the Intelligent Investor*. Tokyo: Kodansha International.
- McCraw**, Thomas K., and Forest Reinhardt. 1989. "Losing to Win: U.S. Steel's Pricing, Investment Decisions, and Market Share, 1901-1938." *Journal of Economic History* **49:3**.
- Means, Gardiner C. 1930. "The **Diffusion** of Stock Ownership in the United States." *Quarterly Journal of Economics* **44:561-600**.
- Michie, R. C. 1987. *The London and New York Stock Exchanges, 1850-1914*. London: Allen and Unwin.
- Mowery, David C. 1986. "Industrial Research, 1900-1950." In *Decline of the British Economy*, ed. Bernard Elbaum and William Lazonick. Oxford: Clarendon.
- Navin, Thomas, and Marion Sears. 1955. "The Rise of a Market for Industrial Securities, 1887-1902." *Business History Review* 24, no. 2: 105-38.
- Nelson, Richard, and Sidney Winter. 1982. *An Evolutionary Theory of Economic Change*. Cambridge, Mass.: Belknap Press.
- New York Stock Exchange Fact Book 1989*. 1989. New York: New York Stock Exchange.
- Noble, David. 1979. *America by Design: Science, Technology, and the Rise of Corporate Capitalism*. Oxford: Oxford University Press.
- Nussbaum, Bruce, et al. 1986. "The End of Corporate *Loyalty*?" *Business Week*, August 4, 42-48.
- Phillips, Kevin. 1990. *The Politics of Rich and Poor*. New York: Random House.
- Pollack**, Andrew. 1989. "Venture Capital Loses Its Vigor." *New York Times*, August 3.
- Ravenscraft, D., and F. M. **Scherer**. 1987. *Mergers, Sell-offs and Economic Efficiency*. Washington, D.C.: Brookings Institute.
- Reich, Leonard S. 1985. *The Making of American Industrial Research*. Cambridge: Cambridge University Press.
- Reich, Robert B., and John Donahue. 1986. *New Deals: The Chrysler Revival and the American System*. New York: Penguin.
- Rosenbloom, Richard. 1989. "A Comparison of NCR's and Borroughs' Entry into Computing." Paper presented at the Business History Seminar, Harvard Business School, October 2.
- Schumpeter, Joseph A. 1947. "The Creative Response in Economic History." *Journal of Economic History* **7: 149-59**.
- Schumpeter, Joseph A. 1950. *Capitalism, Socialism and Democracy*. 3d ed. New York: Harper.
- Sheiber, Harry N., Harold G. Vatter, and Harold U. Falkner. 1976. *American Economic History: A Comprehensive Revision of the Earlier Work by Harold Underwood Falkner*. New York: Harper and Row.

- Sobel, Robert. 1981. *IBM: Colossus in Transition*. New York: Times Books.
- Taggart, Robert A., Jr. 1986. "Have U.S. Corporations Grown Financially Weak?" In *Financing Corporate Capital Formation*, ed. Benjamin M. Friedman. Chicago: University of Chicago Press.
- Taggart, Robert A., Jr. 1988. "The Growth of the 'Junk' Bond Market and Its Role in Financing Takeovers." *Mergers and Acquisitions*, ed. J. Auerbach. Chicago: University of Chicago Press.
- U.S. Bureau of the Census. 1976. *Historical Statistics of the United States from Colonial Times to 1970*. Washington, D.C.: GPO
- Verity, John. 1989. "A Slimmer IBM May Still be Overweight." *Business Week*, December 18.
- Waldman, Steven, et al. 1989. "The \$5 Trillion **Schock**." *Newsweek*, December 18.
- Wall Street Journal*. 1989. "Wall Street's Year-End Bonuses are Headed for Seven-Year Low." December 8.
- Wigmore**, Barrie A. 1989. "The Decline of Credit Quality of Junk Bond New Issues, 1980-1988." November 1989. Photocopy.
- Wilson, John W. 1985. *The New Venturers: Inside the High-Stakes World of Venture Capital*. Reading: Addison-Wesley.
- Zellner, Wendy, et al. "Chrysler Heads Back to *Earth*." *Business Week*, December 18.