

The Fragility of the US Economy: The Financialized Corporation and the Disappearing Middle Class

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1. Inequity and instability in the world's largest economy

The United States has the world's largest economy in terms of gross domestic product. In 2009 it was the home base of 139 of the world's top 500 business corporations by revenues.¹ In 2009 the 500 largest US-based corporations had \$9,763 billion in worldwide revenues, \$391 billion in worldwide profits, and employed 24.7 million people in the United States and abroad.²

At the same time, the US economy is fragile because of a failure of its leading corporations to make sufficient investments in innovation in the United States to generate the high value-added jobs for a national workforce that must compete globally on the basis of high productivity rather than low wages. The fundamental reason for this fragility, I will argue, is the "financialization" of corporate resource allocation. By financialization, I mean the evaluation of the performance of a company by a financial measure such as earnings per share rather than by the goods and services that it produces, the customers it serves, and the people whom it employs.

The growth of the US economy depends on corporate investment in innovation, defined in economic terms as higher quality goods and services at lower unit costs, given prevailing factor prices. Only innovation can generate the types of jobs that are sustainable in a high-wage economy as the US labor force competes against qualified labor in lower wage parts of the world. Innovation is an uncertain, collective, and cumulative process. Investment in innovation is a direct investment that involves, first and foremost, a strategic confrontation with technological, market, and competitive uncertainty. Those who have the abilities and incentives to allocate resources to innovation must decide, in the face of uncertainty, what types of investments have the potential to generate higher-quality, lower-cost products. Then they must mobilize committed finance to sustain the collective and cumulative innovation process until, through organizational learning that transforms technologies and accesses markets, it generates the higher-quality, lower-cost products that permit financial returns.

The financialization of corporate resource allocation undermines investment in innovation. The high fixed-cost investments inevitably required to develop technologies and access markets reduce earnings per share in the short-term. Hence executives who are concerned with meeting earnings per share targets on a quarterly basis have incentives to avoid investments in innovation. In the process, these executives can personally benefit by exercising stock options at higher market prices. In the United States the ability of stock-option holders to reap gains from exercising stock options is rarely constrained by criteria that ensure that these gains reflect the productive performance of the executive's company. Unindexed stock options enable executives to gain from both stock-market speculation and stock-market manipulation. This form of compensation gives executives

¹ <http://money.cnn.com/magazines/fortune/global500/2010/countries/US.html>, from *Fortune*, July 26, 2010.

² <http://money.cnn.com/magazines/fortune/fortune500/2010/industries/>, from *Fortune*, May 3, 2010. From 2008 to 2009 Fortune 500 total revenues declined from \$10,688 million to \$9,763 million and total employment from 25.6 million to 24.7 million. Yet total profits increased from \$99 million to \$391 million.

an interest in touting the prospects of the company to encourage speculation in the company's stock, even when the optimistic projections are not warranted. It also gives executives an interest in allocating resources to repurchasing their own company's shares with the purpose of boosting their company's stock price and hitting quarterly earnings per share targets. As we shall see, gains from the exercise of stock options represent the most important single component of top executive pay at major US corporations, while stock repurchases have become the most important means by which corporations "create value" for shareholders.

The ideology, prevalent since the early 1980s, that has justified the financialization of corporate resource allocation is the belief that, for the sake of superior economic performance, corporate resources should be allocated to "maximize shareholder value" (MSV). In an interview in The Financial Times in March 2009, Jack Welch, former CEO of General Electric, proclaimed: "On the face of it, shareholder value is the dumbest idea in the world. Shareholder value is a result, not a strategy...your main constituencies are your employees, your customers and your products." Perhaps in response to a look of astonishment on the face of the interviewer, Welch went on to reiterate: "It is a dumb idea. The idea that shareholder value is a strategy is insane. It is the product of your combined efforts – from the management to the employees."

Nevertheless, the fact is that, especially in the United States, this "dumb idea" rules corporate business behavior, as much if not more after the Great Recession of 2008-2009 than it did before. In this paper I will explain why MSV is a "dumb idea" in terms of the performance of both the business corporation and the economy as a whole. Based on "agency theory", financial economists argue that among all the participants in the corporate economy it is only shareholders who make productive contributions without a guaranteed return. Hence, as the sole risk-bearers in corporate investments, shareholders are "residual claimants" to whom "free cash flow" should be distributed for the sake of the optimal allocation of the economy's resources. In contrast, what I call "innovation theory" argues that governments and employees regularly make productive contributions to the corporate economy without a guaranteed return, and by agency theory's own logic should also have "residual claimant status". Indeed, given that the innovation process requires "financial commitment", it is not at all clear that public shareholders, who participate in the stock market because it provides financial liquidity, make productive contributions to the innovation process in the first place.

Following my critique of MSV, I will provide a historical summary of when, how, and why corporate resource allocation became financialized in the United States. The first transformation in corporate organization that resulted in financialization was the conglomerate movement of the 1960s in which, especially at its peak at the end of that decade, companies took on debt to acquire other companies for the sole purpose of increasing earnings per share so that public investors would bid up the conglomerate's stock price. In the 1970s the collapse of the conglomerate movement provided the "junk" bonds that were the foundation of Michael Milken's creation of the high-yield bond market that would ultimately enable the hostile takeover movement of the 1980s. With the rise of a "market for corporate control", debt was used to take over companies that would then be downsized and sold off in pieces in order to make the deal pay. Meanwhile

high inflation in the 1970s encouraged Wall Street to shift from helping companies raise funds for investment in long-term growth to helping stock-market investors find ways to secure higher yields on corporate securities by laying hold of corporations' so-called "free" cash flow. Increasingly from the 1980s the favored mode of extracting this cash flow from US corporations became repurchases of the corporations' own outstanding common stock. Legitimizing these changes in financial institutions was the ideology that superior economic performance could be achieved when companies sought to maximize shareholder value.

I will then show how, driven by MSV ideology, since the early 1980s the financialization of corporate resource allocation has contributed to the growing inequality of income, instability of employment, and disappearance of middle-class jobs in the US economy. My argument is that since the beginning of the 1980s employment relations in US industrial corporations have undergone three major structural changes – which I summarize as “rationalization”, “marketization”, and “globalization” – that have permanently eliminated middle-class jobs. From the 1980s rationalization, characterized by plant closings, eliminated the jobs of unionized blue-collar workers. From the 1990s marketization, characterized by the end of a career with one company as an employment norm, placed the job security of middle-aged and older white-collar workers in jeopardy. From the 2000s globalization, characterized by the offshoring of employment, left all types of members of the US labor force, even those with advanced educational credentials and substantial work experience, vulnerable to displacement.

Initially, each of these structural changes in employment could be justified in terms of changes in the industrial conditions related to technologies, markets, and competition. The plant closings that characterized rationalization were a response to the superior productive capabilities of Japanese competitors in consumer durable and related capital goods industries that employed significant numbers of unionized blue-collar workers. The erosion of the one-company-career norm among white-collar workers that characterized marketization was a response to the dramatic technological shift from proprietary technology systems to open technology systems that was integral to the microelectronics revolution. The offshoring of the jobs of well-educated and highly experienced US members of the labor force that characterized globalization was a response to the emergence of large supplies of highly capable labor in nations such as China and India.

Once US corporations became engaged in these structural changes in employment relations, however, they often pursued these employment strategies purely for financial gain. Some companies closed manufacturing plants, terminated experienced (and generally more expensive) workers, and offshored production to low-wage areas of the world simply to increase profits, often at the expense of the long-term competitive capabilities of the company. Moreover, as these changes became embedded in the structure of US employment, financialized business corporations declined to step in to invest in new, higher value-added job creation on a sufficient scale to provide a foundation for equitable and stable growth in the US economy. On the contrary, with superior corporate performance defined as meeting Wall Street's expectations of steadily rising targets of quarterly earnings per share, companies turned to massive stock

repurchases. Trillions of dollars that could have been spent on innovation and job creation in the US economy over the past three decades have instead been used to manipulate the prices of corporate stock. Again, the rationale behind these changes in corporate investment behavior has been the ideology that companies should be run to maximize shareholder value.

In the light of my analysis of the relation between the financialization of the US corporation and the disappearance of middle-class jobs, the final section of this paper suggest ways in which the US economy should be reformed to set the United States back on a path toward equitable and sustainable economic growth. These reforms include 1) banning of stock repurchases by established US corporations so corporate financial resources that could be allocated to innovation and job creation are not wasted for the purpose of manipulating a company's stock prices; 2) indexing of employee stock options to an indicator of innovative performance so that executives cannot gain from speculation in and manipulation of their companies' stock prices; 3) regulation of the employment contract to ensure that employees who contribute to the innovation process share in the gains to innovation; 4) creation of work programs that make use of and enhance the capabilities of educated and experienced workers whose human capital would otherwise deteriorate through lack of other relevant employment; and 5) implementation of taxes on the gains from innovation to fund those government agencies that need to invest in the public knowledge base required for the next round of innovation. I will argue that an intellectual, and political, precondition for these reforms is a rejection of the ideology that corporations should be run to maximize shareholder value.

2. Shareholder Value Ideology

The ideology that, for the sake of superior economic performance, companies should “maximize shareholder value”, was a product of the early 1980s (Rappaport 1981 and 1983). At the same time, through agency theory, academic economists supported this ideology by propounding a shareholder-value perspective on corporate governance that is consistent with the neoclassical theory of the market economy (Fama and Jensen 1983a and 1983b). Especially in the United States, MSV remains the dominant ideology of corporate governance not only in business schools and economics departments but also in executive suites and corporate boardrooms.

For adherents of the neoclassical theory of the market economy, “market imperfections” necessitate managerial control over the allocation of resources, thus creating an “agency problem” for those “principals” who have made investments in the firm. These managers may allocate corporate resources to build their own personal empires regardless of whether the investments that they make and the people whom they employ generate sufficient profits for the firm. They may hoard surplus cash or near-liquid assets within the corporation, thus maintaining control over uninvested resources, rather than distributing these extra revenues to shareholders. Or they may simply use their control over resource allocation to line their own pockets. According to agency theory, in the absence of corporate governance institutions that promote the maximization of shareholder value, one should expect managerial control to result in the inefficient allocation of resources.

The manifestation of a movement toward the more efficient allocation of resources, it is argued, is a higher return to shareholders. But why is it shareholders for whom value should be maximized? Why not create more value for creditors by making their financial investments more secure, or for employees by paying them higher wages and benefits, or for communities in which the corporations operate by generating more corporate tax revenues? Neoclassical financial theorists argue that among all the stakeholders in the business corporation only shareholders are “residual claimants”. The amount of returns that shareholders receive depends on what is left over after other stakeholders, all of whom it is argued have guaranteed contractual claims, have been paid for their productive contributions to the firm. If the firm incurs a loss, the return to shareholders is negative, and vice versa.

By this argument, shareholders are the only stakeholders who have an incentive to bear the risk of investing in productive resources that may result in superior economic performance. As residual claimants, moreover, shareholders are the only stakeholders who have an interest in monitoring managers to ensure that they allocate resources efficiently. Furthermore, by selling and buying corporate shares on the stock market, public shareholders, it is argued, are the participants in the economy who are best situated to reallocate resources to more efficient uses.

Within the shareholder-value paradigm, the stock market represents the corporate governance institution through which the agency problem can be resolved and the efficient allocation of the economy’s resources can be achieved. Specifically, the stock market can function as a “market for corporate control” that enables shareholders to “disgorge” – to use Michael Jensen’s evocative term – the “free cash flow”. As Jensen (1986, 323), a leading academic proponent of maximizing shareholder value, put it in a seminal 1986 article:

Free cash flow is cash flow in excess of that required to fund all projects that have positive net present values when discounted at the relevant cost of capital. Conflicts of interest between share-holders and managers over payout policies are especially severe when the organization generates substantial free cash flow. The problem is how to motivate managers to disgorge the cash rather than investing it at below cost or wasting it on organization inefficiencies.

How can those managers who control the allocation of corporate resources be motivated, or coerced, to distribute cash to shareholders? If a company does not maximize shareholder value, shareholders can sell their shares and reallocate the proceeds to what they deem to be more efficient uses. The sale of shares depresses that company’s stock price, which in turn facilitates a takeover by shareholders who can put in place managers who are willing to distribute the free cash flow to shareholders in the forms of higher dividends and/or stock repurchases. Better yet, as Jensen argued in the midst of the 1980s corporate takeover movement, let corporate raiders use the market for corporate control for debt-financed takeovers, thus enabling shareholders to transform their corporate

equities into corporate bonds. Corporate managers would then be “bonded” to distribute the “free cash flow” in the form of interest rather than dividends (Jensen 1986, 324).

Additionally, as Jensen and Murphy (1990), among others, contended, the maximization of shareholder value could be achieved by giving corporate managers stock-based compensation, such as stock options, to align their own self-interests with those of shareholders. Then, even without the threat of a takeover, these managers would have a personal incentive to maximize shareholder value by investing corporate revenues only in those “projects that have positive net present values when discounted at the relevant cost of capital” and distributing the remainder of corporate revenues to shareholders in the forms of dividends and/or stock repurchases.

During the 1980s and 1990s, MSV became the dominant ideology for corporate governance in the United States. Top executives of US industrial corporations became ardent advocates of this perspective; quite apart from their ideological predispositions, the reality of their stock-based compensation inured them to maximizing shareholder value (Lazonick 2010c). The long stock market boom of the 1980s and 1990s combined with the remuneration decisions of corporate boards to create this pay bonanza for corporate executives.

To some extent, the stock market boom of the 1980s and 1990s was driven by innovation, largely related to the microelectronics revolution. By the late 1990s, however, innovation had given way to speculation as a prime mover of stock prices. Then, after the collapse of the Internet bubble at the beginning of the 2000s, corporate resource allocation sought to restore stock prices through manipulation in the form of stock buybacks (Lazonick 2010c). From 2000 through 2009, 456 companies in the S&P 500 Index in 2009 that were publicly listed in 2000 expended \$2.5 trillion on stock repurchases, an average of \$5.5 billion per company, while distributing a total of \$1.8 trillion in cash dividends, an average of \$3.9 billion per company. In 2007 alone, these companies averaged \$1,220 million in repurchases and \$517 million in dividends. This massive “disgorging” of the corporate cash flow manifests a decisive triumph of agency theory and its shareholder-value ideology in the determination of corporate resource allocation.

Has this financial behavior led to a more efficient allocation of resources in the economy, as the proponents of maximizing shareholder-value claim? Quite apart from the empirical industry-level and firm-level evidence that I have adduced elsewhere (Lazonick 2009a and 2010c), there are a number of critical flaws in agency theory’s analysis of the relation between corporate governance and economic performance. These flaws have to do with 1) a failure to explain how, historically, corporations came to control the allocation of significant amounts of the economy’s resources; 2) the measure of “free cash flow”; and 3) the claim that only shareholders have “residual claimant” status. These flaws stem from the fact that agency theory, like the neoclassical theory of the market economy in which it is rooted, lacks a theory of innovative enterprise (see Lazonick 2002 and 2010b)

Agency theory makes an argument for taking resources out of the control of inefficient managers without explaining how, historically, corporations came to possess the vast amounts of resources over which these managers could exercise allocative control (see

Lazonick 1992). From the first decades of the 20th century, the separation of share ownership from managerial control characterized US industrial corporations. This separation occurred because the growth of innovative companies demanded that control over the strategic allocation of resources to develop new technologies and access new markets be placed in the hands of salaried professionals who understood the investment requirements of the particular lines of business in which the enterprise competed. At the same time, the listing of a company on a public stock exchange enabled the original owner-entrepreneurs to sell their stock to the shareholding public. Thereby enriched, they were able to retire from their positions as top executives. The departing owner-entrepreneurs left control in the hands of senior salaried professionals, most of whom had been recruited decades earlier to help to build the enterprises. The resultant disappearance of family owners in positions of strategic control enabled the younger generation of salaried professionals to view the particular corporations that employed them as ones in which, through dedicated work effort over the course of a career, they could potentially rise to the ranks of top management.

With salaried managers exercising strategic control, innovative managerial corporations emerged as dominant in their industries during the first decades of the century. During the post-World War II decades, and especially during the 1960s conglomerate movement, however, many of these industrial corporations grew to be too big to be managed effectively. Top managers responsible for corporate resource allocation became segmented, behaviorally and cognitively, from the organizations that would have to implement these strategies. Behaviorally, they came to see themselves as occupants of the corporate throne rather than as members of the corporate organization, and became obsessed by the size of their own remuneration. Cognitively, the expansion of the corporation into a multitude of businesses made it increasingly difficult for top management to understand the particular investment requirements of any of them (Lazonick 2004b).

In the 1970s and 1980s, moreover, many of these US corporations faced intense foreign competition, especially from innovative Japanese corporations (also, it should be noted, characterized by the separation of share ownership from managerial control). An innovative response required governance institutions that would reintegrate US strategic decision makers with the business organizations over which they exercised allocative control. Instead, guided by MSV ideology and rewarded with stock options, what these established corporations got were managers who had a strong personal interest in boosting their companies' stock prices, even if the stock-price increase was accomplished by a redistribution of corporate revenues from labor incomes to capital incomes and even if the quest for stock-price increases undermined the productive capabilities that these companies had accumulated in the past.

Agency theory also does not address how, at the time when innovative investments are made, one can judge whether managers are allocating resources inefficiently. Any strategic manager who allocates resources to an innovative strategy faces technological, market, and competitive uncertainty. Technological uncertainty exists because the firm may be incapable of developing the higher-quality processes and products envisaged in its innovative investment strategy. Market uncertainty exists because, even if the firm

succeeds in its development effort, future reductions in product prices and increases in factor prices may lower the returns that can be generated by the investments. Finally, even if a firm overcomes technological and market uncertainty, it still faces competitive uncertainty: the possibility that an innovative competitor will have invested in a strategy that generates an even higher-quality, lower-cost product that enables it to win market share.

One can state, as Jensen did, that the firm should only invest in “projects that have positive net present values when discounted at the relevant cost of capital.” But, quite apart from the problem of defining the “relevant cost of capital,” anyone who contends that, when committing resources to an innovative investment strategy, one can foresee the stream of future earnings that are required for the calculation of net present value knows nothing about the innovation process. It is far more plausible to argue that if corporate managers really sought to maximize shareholder value according to this formula, they would never contemplate investing in innovative projects with their highly uncertain returns (see Baldwin and Clark 1992; Christensen et al. 2008).

Moreover, it is simply not the case, as agency theory assumes, that all the firm’s participants other than shareholders receive contractually guaranteed returns according to their productive contributions. Given its investments in productive resources, the state has residual-claimant status. Any realistic account of economic development must take into account the role of the state in 1) making infrastructural investments that, given the required levels of financial commitment and inherent uncertainty of economic outcomes, business enterprises would not have made on their own; and 2) providing business enterprises with subsidies that encourage investment in innovation. In terms of investment in new knowledge with applications to industry, the United States was the world’s foremost developmental state over the course of the 20th century (see Lazonick 2008; Block 2009). As one prime example, it is impossible to explain US dominance in computers, microelectronics, software, and data communications without recognizing the role of government in making seminal investments that developed new knowledge and infrastructural investments that facilitated the diffusion of that knowledge (see, for example, National Research Council 1999). As another prime example, the annual budget of the National Institutes of Health (NIH) for spending on life sciences research was \$30.2 billion in 2009, double in real terms the budget that it had in the mid-1990s and bringing total NIH spending since the founding of the first national institute in 1938 to \$696 billion in 2009 dollars (Lazonick and Tulum 2010).

More generally, the US government has made investments to augment the productive power of the nation through federal, corporate, and university research labs that have generated new knowledge as well as through educational institutions that have developed the capabilities of the future labor force. Business enterprises have made ample use of this knowledge and capability. In effect, in funding these investments, the state (or more correctly, its body of taxpayers) has borne the risk that the nation’s business enterprises would further develop and utilize these productive capabilities in ways that would ultimately redound to the benefit of the nation, *but with the return to the nation in no way contractually guaranteed.*

In addition, the US government has often provided cash subsidies to business enterprises to develop new products and processes, or even to start new firms. The public has funded these subsidies through current taxes, borrowing against the future, or by making consumers pay higher product prices for current goods and services than would have otherwise prevailed. Multitudes of business enterprises have benefited from subsidies without having to enter into contracts with the public bodies that have granted them to remit a guaranteed return from the productive investments that the subsidies help to finance.

Like taxpayers, workers can also find themselves in the position of having made investments without a contractually guaranteed return. The collective and cumulative innovation process demands that workers expend time and effort now for the sake of returns that, precisely because innovation is involved, can only be generated in the future, which may entail the development and utilization of productive resources over many years. Insofar as workers involved in the innovation process make this investment of their time and effort in the innovation process without a contractually guaranteed return, they have residual claimant status.

In an important contribution to the corporate governance debate, Margaret Blair (1995) argued that, alongside a firm's shareholders, workers should be accorded residual-claimant status because they make investments in "firm-specific" human capital at one point in time with the expectation – but without a contractual guarantee – of reaping returns on those investments over the course of their careers. Moreover, insofar as their human capital is indeed firm-specific, these workers are dependent on their current employer for generating returns on their investments. A lack of interfirm labor mobility means that the worker bears some of the risk of the return on the firm's productive investments, and hence can be considered a residual claimant. Blair goes on to argue that if one assumes, as shareholder-value proponents do, that only shareholders bear risk and residual-claimant status, there will be an underinvestment in human capital to the detriment of not only workers but the economy as a whole

What role do public shareholders play in this innovation process? Do they confront uncertainty by strategically allocating resources to innovative investments? No. As portfolio investors, they diversify their financial holdings across the outstanding shares of existing firms to minimize risk. They do so, moreover, with limited liability, which means that they are under no legal obligation to make further investments of "good" money to support previous investments that have gone bad. Indeed, even for these previous investments, the existence of a highly liquid stock market enables public shareholders to cut their losses instantaneously by selling their shares – what has long been called the "Wall Street walk".

Without this ability to exit an investment easily, public shareholders would not be willing to hold shares of companies over the assets of which they exercise no direct allocative control. It is the liquidity of a public shareholder's portfolio investment that differentiates it from a direct investment, and indeed distinguishes the public shareholder from a private shareholder who, for lack of liquidity of his or her shares, must remain committed to his or her direct investment until it generates financial returns. The modern corporation

entails a fundamental transformation in the character of private property, as Adolf Berle and Gardiner Means (1932) recognized. As property owners, public shareholders own tradable shares in a company that has invested in real assets; they do not own the assets themselves.

Indeed, the fundamental role of the stock market in the United States in the 20th century was to transform illiquid claims into liquid claims on *the basis of investments that had already been made*, and thereby separate share ownership from managerial control. Business corporations sometimes do use the stock market as a source of finance for new investments, although the cash function has been most common in periods of stock market speculation when the lure for public shareholders to allocate resources to new issues has been the prospect of quickly “flipping” their shares to make a rapid speculative return. Public shareholders want financial liquidity; investments in innovation require financial commitment. It is only by ignoring the role of innovation in the economy, and the necessary role of insider control in the strategic allocation of corporate resources to innovation, that agency theory can argue that superior economic performance can be achieved by maximizing the value of those actors in the corporate economy who are the ultimate outsiders to the innovation process.

3. Financialization of Corporate Resource Allocation

By definition, business enterprises need to avoid losses over the long term to survive. Yet investments in innovation inherently entail losses over the periods of time during which products and processes are developed to generate higher quality products and markets are accessed to transform the high-fixed costs of the innovation process into low unit costs (Lazonick 2010b). Investments in innovation, therefore, require committed finance, or “patient capital”. In a company that has already had successful products, the foundation of committed finance is earnings retained out of profits; part of the gains from successful innovation of the past provide committed finance for the next round of innovation. I call this mode of corporate finance a “retain-and-reinvest” allocation regime.

In historical perspective, the US industrial corporation of the immediate post-World War II decades was relatively unfinancialized. Regular distributions of dividends encouraged stable shareholding of publicly listed companies. The corporation prudently leveraged retentions with long-term bond issues to support the growth of the organization. At established corporations listed on the New York Stock Exchange (NYSE), both blue-collar and white-collar workers had the realistic expectation of career employment with one company. When economic downturns forced layoffs, they were viewed as temporary, and collective bargaining agreements often provided unemployment benefits that supplemented government unemployment payments.

Stock-based compensation, which would eventually become a key source of corporate financialization, became an important component of top executive pay after the Revenue Act of 1950 allowed the gains from executive stock options to be taxed at the capital-gains tax rate of 25 percent rather than at the personal income tax rate which, for income in the highest tax bracket, over 90 percent. To gain this tax advantage, however, stock

purchased by exercising an option could not be sold for at least six months from the exercise date, thus preventing an executive from benefiting from short-term increases in the company's stock price. From the late 1950s, moreover, there was a Congressional backlash against this tax privilege. The Revenue Act of 1964 required stock acquired by exercising a "qualified" stock option to be held three years from the exercise date to be eligible for capital-gains tax treatment, and the Tax Reform Act of 1976 eliminated altogether this tax advantage of executive stock options (Lazonick 2010c). In 1978 Graef Crystal (1978, 145), who would later become a leading critic of excessive executive pay (Crystal 1991), wrote that qualified stock options, "once the most popular of all executive compensation devices...have been given the last rites by Congress.

Meanwhile, however, the conglomerate movement of the 1960s, which reached its peak in 1969, represented the first major movement toward the financialization of US corporate resource allocation. Business schools taught that a good manager could manage anything, while many industrial-organization economists argued that conglomerates enabled efficiencies in capital allocation and utilization of managerial capabilities (see Hurley 2006). Catering to a speculative stock market, however, conglomeration often became simply a method of boosting earnings-per-share (EPS) of the company as a whole by using debt issues to finance the acquisition of companies with lower price/earnings (P/E) ratios. While it should have been clear to stock-market investors that such short-term financial manipulation undermined the financial conditions for sustaining higher levels of EPS over the long term, stock-market speculators were only interested in capitalizing on short-term changes in the market's evaluation of corporate shares.³

Deconglomeration of the 1970s and 1980s revealed the weakness of the conglomerate as a productive business model. Even in conglomerates in which acquisitions were not driven primarily by financial motives, strategic decision-makers, isolated at the top in the conglomerate headquarters, tended to be ignorant of the types of resource allocation required for innovative enterprise with the company's many different lines of business. By the early 1970s the downgraded debt of conglomerates, known as "fallen angels", created the opportunity for a young bond trader, Michael Milken, at the investment banking firm of Drexel Burnham, to create a liquid market in high-yield "junk bonds". By the late 1970s companies were issuing junk bonds directly, often to do management buyouts as the "deconglomeration" movement saw conglomerates try to divest unprofitable conglomerate divisions so that they could become, once again, autonomous firms run by executives who understood the investment requirements of the businesses that they were managing. By the mid-1980s Milken (who eventually went to jail for securities fraud) was using his network of financial institutions to back corporate raiders in junk-bond financed leveraged buyouts with the purpose of extracting as much money as possible from a company once it was taken over through layoffs and by breaking up the company to sell it off in pieces (Bruck 1989).

Meanwhile in the 1970s speculative trading in corporate stocks had become much simpler and less costly through a number of transformations on US securities markets. In 1971 the creation of the National Association of Security Dealers Automated Quotation

³ See the various articles on conglomeration in St. John's Law Review, 44, 1969-1970.

(NASDAQ) System out of the fragmented over-the-counter markets dramatically increased the liquidity of the stocks of corporation that did not have the capitalization and profit record required for listing on NYSE (Ingebretsen 2002). In 1974 the passage of the Employee Retirement Income Security Act created the conditions for investing the vast assets of pension funds in corporate stocks on a much larger scale than previously, thus adding an immense amount of liquidity to US stock markets (Ghilarducci 1994; Carey 2010). In 1975 the Securities and Exchange Commission (SEC) barred stock exchanges from charging fixed commissions on stock-trading transactions, ending a practice that had prevailed on Wall Street since 1796. This change made it less costly for stock-market investors to buy and sell shares to realize capital gains as an alternative to holding the shares for the sake of a stream of dividend income. Over the course of the decade, the main activity of Wall Street shifted from helping to finance the long-term investments of US industrial corporations to trading in their outstanding securities (see Auletta 1986, Carrington 1987, Lowenstein 1989).

The launch of NASDAQ in 1971, with its much less stringent listing requirements than the NYSE, made it much easier for a young company with little or no profits to do an initial public offering (IPO), thus enhancing the ability of venture capitalists to use this mode of exit from their private-equity investments. In the early 1970s, however, there was only a trickle of institutional money invested in venture capital, and even that flow dried up when the passage of the Employee Retirement Income Security Act (ERISA) in 1974 made corporations responsible for underfunded pensions and pension fund managers personally liable for breaches of their fiduciary duty to use the “prudent man” rule when making investments (see Niland 1976). Under these circumstances, pension fund managers, who controlled the allocation of an ever-increasing share of U.S. household savings, avoided investment in venture capital funds. On July 23, 1979, however, the US Department of Labor decreed that pension fund money could be invested not only in listed stocks and high-grade bonds but also in more speculative assets, including new ventures, without transgressing the prudent man rule (Ross 1979). As a result pension fund money poured into venture capital funds.

In 1978, in response to intensive lobbying led by the American Electronics Association and the National Venture Capital Association (both of which were dominated by Silicon Valley interests), the US Congress reduced the capital-gains tax from as high as 49.875 percent to a maximum of 28 percent, thus reversing a 36-year trend toward higher capital-gains taxes (Pierson 1978; Lazonick 2009a, ch. 2). In 1981 the capital-gains tax rate was further reduced to a maximum of 20 percent (Auten 1999). Venture capitalists saw lower capital-gains taxes as encouraging both entrepreneurial investment in new companies and portfolio investment by individuals in the publicly traded stocks of young, potentially high-growth companies.

By the early 1980s, centered in Silicon Valley, “venture capital” had clearly emerged as an industry dedicated to the formation of new firms. Venture capital played a central role in the rise of what I have called the “New Economy business model” (NEBM). In the process the stock market became far more important to the operation of the US industrial economy than had previously been the case. Elsewhere I have shown that the stock market can perform five functions in the operation of the company that can be

summarized as “control”, “creation”, “compensation”, “combination”, and “cash” (see Lazonick 2009b).

Under the “Old Economy business model” (OEBM), the main function of the stock market had been to separate ownership from control; the fragmentation of share ownership of publicly listed companies left salaried managers in positions of strategic control over the allocation of corporate resources. The separation of ownership from control occurs to some extent under NEBM when companies list on the stock market. Under NEBM, however, the stock market also performs “creation”, “compensation”, and “combination” functions. The rise of NEBM relied on prospective stock-market gains through an IPO or merger-and-acquisition (M&A) deal to induce financial capital accumulated in the Old Economy to be transferred to the New Economy in the form of venture capital that would support the creation of startups. Through the offer of what came to be known as “broad-based” stock-option plans as an integral component of employee compensation, the rise of NEBM relied on prospective stock-market gains to induce professional, technical, and administrative labor to leave secure employment at established companies for insecure employment at startups. In addition, under NEBM it became common for companies to use their stock rather than cash as a currency to acquire other companies; the classic example is Cisco Systems which from September 1993 through July 2003 did 81 acquisitions for \$38.1 billion, 98 percent of which was paid in stock (Lazonick 2009b).

New Economy companies tend to go public with less accumulated capital than was the case with Old Economy companies, and NASDAQ is a more speculative stock market than NYSE. As a result, the “cash” function through IPOs and secondary stock issues is relatively more important under NEBM than it was under OEBM (Lazonick 2009b; Lazonick and Tulum 2010). For the sake of financing their growth in their first decade or two of existence, New Economy companies have tended to reinvest all their earnings, paying no dividends. The innovative success of such a company has resulted in a rising stock price, which in turn strengthens the value of its stock as a compensation and combination currency.

In the 1980s and 1990s, as shown in Table 1, high real stock yields characterized the US corporate economy. These high yields came mainly from stock-price appreciation as distinct from dividends yields, which were low in the 1990s despite high dividend payout ratios.⁴ With the S&P 500 Index rising almost 1,400 percent from March 1982 to August 2000, the availability of gains from exercising stock options became almost automatic. Given the extent to which the explosion in US top executive pay over the past three decades has been dependent on gains from exercising stock options, there is a need to understand the drivers of the stock-price increases that generate these gains.

⁴ In the 1980s dividends paid out by US corporations increased by an annual average of 10.8 percent while after-tax corporate profits increased by an annual average of 8.7 percent. In the 1990s these figures were 8.0 percent for dividends (including an absolute decline in dividends of 4.0 percent in 1999, the first decline since 1975) and 8.1 percent for profits. The dividend payout ratio – the amount of dividends as a proportion of after-tax corporate profits (with inventory evaluation and capital consumption adjustments) – was 48.9 percent in the 1980s and 55.0 percent in the 1990s compared with 39.5 percent in the 1960s and 41.6 percent in the 1970s. From 2000 to 2009 the dividend payout ratio was 61.4 percent, including a record 70.4 percent in 2007 (US Congress 2010, Table B-90).

Table 1: Average annual US corporate stock and bond yields (%), 1960-2009

	1960-1969	1970-1979	1980-1989	1990-1999	2000-2009
Real stock yield	6.63	-1.66	11.67	15.01	-3.08
Price yield	5.80	1.35	12.91	15.54	-2.30
Dividend yield	3.19	4.08	4.32	2.47	1.79
Change in CPI	2.36	7.09	5.55	3.00	2.57
Real bond yield	2.65	1.14	5.79	4.72	3.41

Stock yields are for Standard and Poor's composite index of 500 US corporate stocks. Bond yields are for Moody's Aaa-rated US corporate bonds.

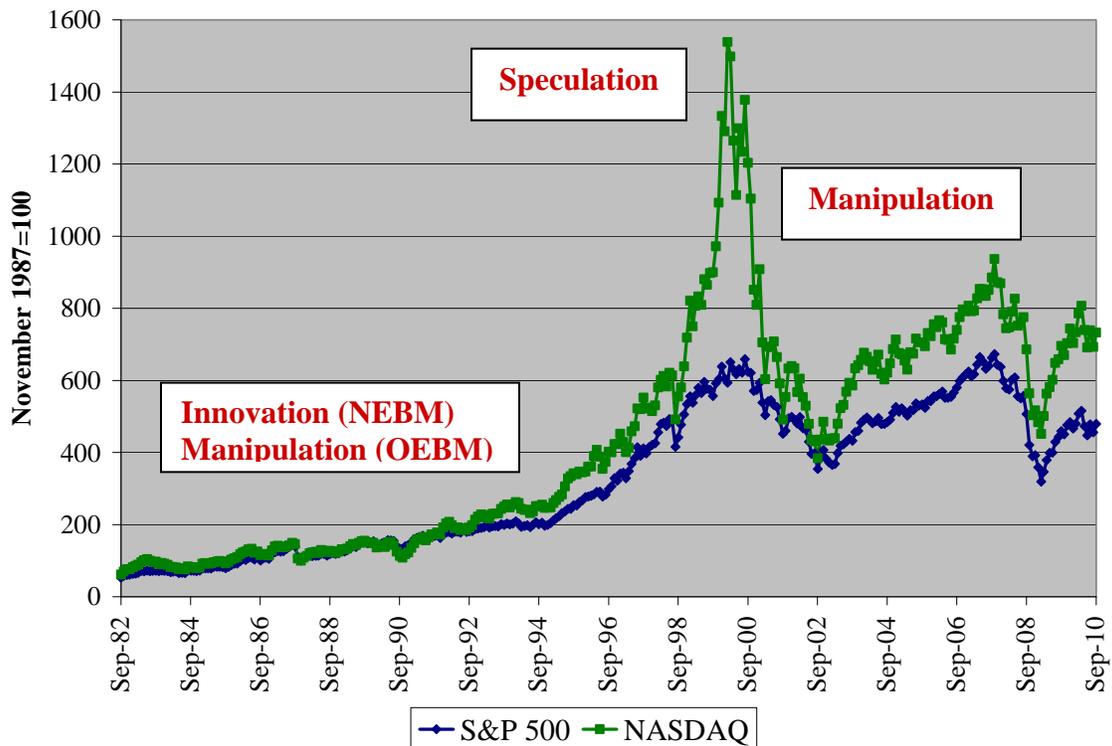
Source: US Congress 2010, Tables B-62, B-73, B-95, B-96.

There are three distinct forces – *innovation*, *speculation*, and *manipulation* – that may be at work in driving stock-price increases. Innovation generates higher quality, lower cost products (given prevailing factor prices) that result in sustainable increases in earnings per share, which in turn lift the stock price of the innovative enterprise. Speculation, encouraged perhaps by innovation, drives the stock price higher, as investors assume either that innovation will continue in the future (which, given that innovation is involved, is inherently uncertain) or that there is a “greater fool” who stands ready to buy the stock at yet a higher price. Manipulation occurs when those who exercise control over corporate resource allocation do so in a way that increases earnings per share despite the absence of innovation.

Figure 1 charts the roles of innovation, speculation, and manipulation as *primary* drivers of US stock-price movements from the mid-1980s to the late 2000s. In the last half of the 1980s Old Economy companies that had run into trouble because of conglomeration in the United States and/or competition from the Japanese sought to manipulate stock prices through a “downsize-and-distribute” resource-allocation strategy (Lazonick 2004a). The corporation sought to boost stock prices by downsizing the labor force and distributing corporate revenues to shareholders in the forms of dividends and stock repurchases. This redistribution of corporate revenues from labor incomes to capital incomes often occurred through debt-financed hostile takeovers, with post-takeover downsizing enabling the servicing and retirement of the massive debt that a company had taken on. In addition, from the mid-1980s, many Old Economy companies engaged for the first time in large-scale stock repurchases in an attempt to support their stock prices.

While Old Economy companies were manipulating stock prices in the 1980s and early 1990s, New Economy companies such as Intel, AMD, Microsoft, Oracle, Solectron, EMC, Sun Microsystems, Cisco Systems, Dell, and Qualcomm were reinvesting virtually all of their incomes to finance the growth of their companies, neither paying dividends nor, once they had gone public, repurchasing stock (Lazonick 2009a, ch. 2). It was *innovation* by New Economy companies, most of them traded on NASDAQ, that culminated in the Internet revolution that provided a real foundation for the rising stock market in the 1980s and first half of the 1990s.

Figure 1. S&P 500 and NASDAQ Composite Indices, Sept. 1982-Sept. 2010
(monthly data, standardized for the two indices to 100 in Nov. 1987)



As of September 2010 the S&P 500 Index consisted of 500 stocks, of which 406 were NYSE and 94 NASDAQ; and the NASDAQ Composite Index consisted of 2,910 stocks.

Source: Yahoo! Finance at <http://finance.yahoo.com> (Historical Prices, Monthly Data).

In the late 1990s, however, the US stock market became highly speculative as the public discovered the existence of innovative New Economy firms, and then began making bets on many dot.com startups that had little in the way of innovative capability. The extent of the speculative bubble is displayed in Figure 1. The rise and fall of the NASDAQ Composite Index between 1998 and 2001 make the movements of the Dow Jones Industrial Average (DJIA), which at the time included Intel and Microsoft as the NASDAQ representatives among its 30 stocks, and the S&P 500 Index, the composition of which is over 80 percent NYSE and under 20 percent NASDAQ, look like mere blips. Between March 1998 and March 2000, the NASDAQ Composite Index of over 3,000 stocks rose by 149 percent compared with 21 percent for the DJIA and 36 percent for the S&P 500 (US Congress 2010, Table B-90).

Especially since 2003 stock repurchases have been the key instrument of stock-market manipulation. A stock repurchase occurs when a company buys back its own shares. In the United States, the SEC requires stock repurchase *programs* to be approved by the company’s board of directors and to be announced publically. These programs authorize a company’s top executives to do a certain amount of buybacks over a certain period of time, with the timing and amount of the repurchases left to the discretion of the executives. For example, on September 22, 2008 Microsoft (2008) announced that “its

board of directors approved a new share repurchase program authorizing up to an additional \$40 billion in share repurchases with an expiration of September 30, 2013.” It is then up to the top executives to decide whether the company should actually do repurchases, when they should be done, and how many shares should be repurchased at any given time. Repurchases are almost always done as open market transactions through the company’s broker. The company is not required to announce the buybacks at the time they are actually done – creating distinct possibilities for insider trading – although since 2004 it has been an SEC rule that, in their quarterly financial reports, companies must state the amount of repurchases in the past quarter and the average purchase price.

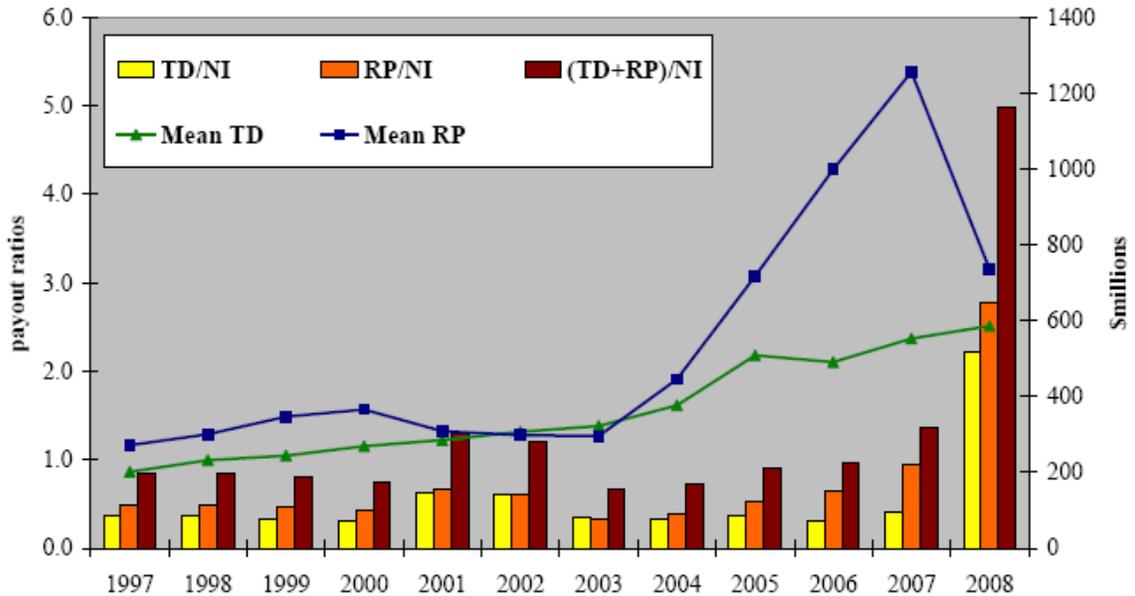
Data on 373 companies in the S&P 500 Index in January 2008 that were publicly listed in 1990 show that they expended an annual average of \$106.3 billion (or \$285 million per company) on stock repurchases in 1995-1999, representing 44 percent of their combined net income. These figures represented a significant increase from \$25.9 billion in repurchases (or \$69 million per company) in 1990-1994, representing 23 percent of their combined net income. Yet in the late 1990s the stage was being set for an even more massive manipulation of the market through stock repurchases, especially from 2003. Figure 2 shows the payout ratios and mean payout levels for 437 companies in the S&P 500 Index in January 2008 that were publicly listed from 1997 through 2008.⁵

From 1997 through 2008 these 437 companies expended \$2.4 trillion on stock repurchases, an average of \$5.6 billion per company, and distributed a total of \$1.6 trillion in cash dividends, an average of \$3.8 billion per company. Stock repurchases by these 437 companies averaged \$296 million in 2003, rising to \$1,256 million in 2007. Combined, the 500 companies in the S&P 500 Index in January 2008 repurchased \$436 billion of their own stock in 2006, representing 64 percent of their net income, and \$549 billion in 2007, representing 94 percent of their net income.

Figure 3 shows how the escalating stock repurchases from 2003 through 2007 helped to boost the stock market, driving the S&P 500 Index even higher in 2007 than its previous peak in 2000 before the 2008 financial debacle. In 2008 repurchases fell substantially for these 437 companies, constrained by a dramatic decline in combined net income from \$584 billion in 2007 to \$116 billion in 2008. Nevertheless, their combined repurchases only declined from \$549 billion to \$322 billion. As a result, the repurchase payout ratio almost tripled from 0.94:1 to 2.78:1. In addition, these companies paid out \$14 billion more in dividends in 2008 than in 2007, with the result that the dividend payout ratio leapt from 0.41:1 to 2.21:1. Allocated differently, the billions spent on buybacks could have helped stabilize the economy. Instead, collectively, these companies not only spent all their profits on repurchases but also ate into their capital.

⁵ Many firms that were big repurchasers before the financial crisis of 2008 dropped out of the S&P 500 in 2009. To capture more fully the extent of repurchases in the years before the financial meltdown, we use the sample of companies in the S&P 500 in January 2008. Buybacks fell further in 2009, but have been rebounding in 2010.

Figure 2: Ratios of cash dividends and stock repurchases to net income, and mean dividend payments and stock repurchases among S&P 500

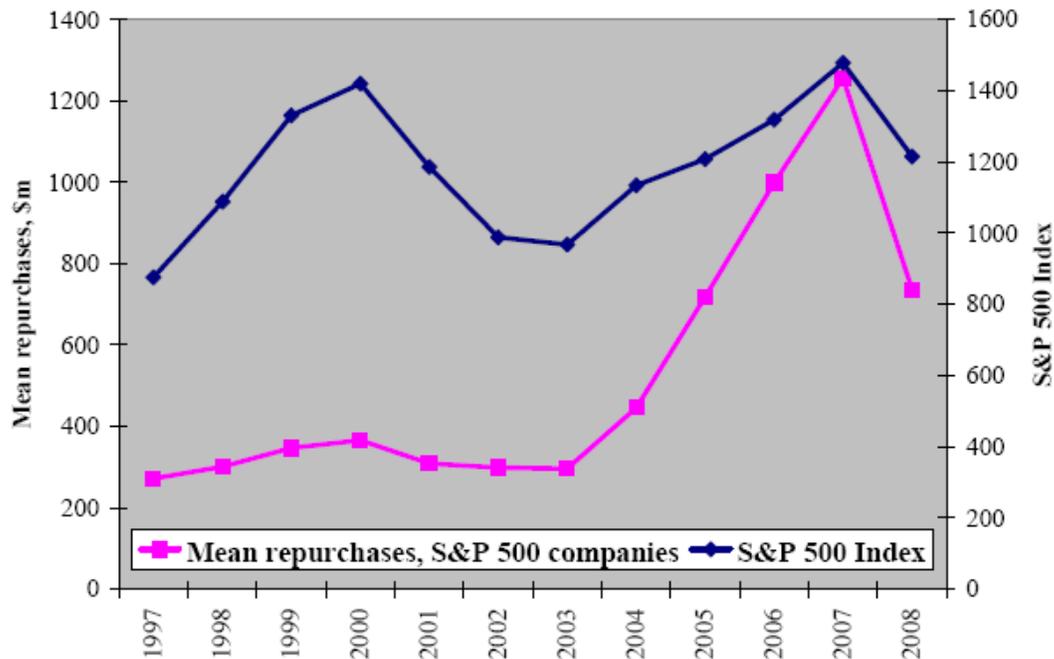


Data for 437 corporations in the S&P 500 Index in January 2008 that were publicly listed 1997-2008. Data for companies that end their fiscal years during the first six months of the calendar year are attributed to the previous year.

RP, stock repurchases; TD, total dividends (common and preferred); NI, net income (after tax with inventory evaluation and capital consumption adjustments).

Sources: S&P Compustat database (North America, Fundamentals Annual, 1997-2008); company 10-K filings for missing or erroneous data from the Compustat database.

Figure 3. Stock repurchases by the S&P 500 (437 companies) and the movement of the S&P 500 Index, 1997-2008



Sources: Standard and Poor's Compustat database (North America, Fundamentals Annual); Yahoo! Finance at <http://finance.yahoo.com> (Historical Prices, Monthly Data).

The facility with which US corporations can do large-scale stock repurchases is the result of the relaxation of SEC rules against stock-price manipulation. Under the Securities Exchange Act of 1934, stock repurchases could be construed as an attempt to manipulate a company's stock price. In 1982, however, with the promulgation of Rule 10b-18, the SEC provided companies with a "safe harbor" that manipulation charges would not be filed if each day's open-market repurchases were not greater than 25 percent of the stock's average daily trading volume and if the company refrained from doing buybacks at the beginning and end of the trading day.⁶

According to a contemporary news report, Rule 10b-18 "made it easier for companies to buy back their shares on the open market without fear of stock-manipulation charges" (Hudson 1982). SEC Chairman John Shad was an advocate of the rule change, arguing that large-scale open market purchases would fuel an increase in stock prices that would be beneficial to shareholders. One of the SEC Commissioners, John Evans, argued that as a result of Rule 10-18b some manipulation would go unprosecuted, but then agreed to make the Commission's vote for the rule change unanimous.

Why do corporations repurchase stock? Executives often claim that buybacks are financial investments that signal confidence in the future of the company and its stock-price performance (Louis and White 2007; Vermaelen 2005, ch. 3). In fact, however, companies that do buybacks never sell the shares at higher prices to cash in on these investments. To do so would be to signal to the market that its stock price had peaked. According to the "signaling" argument, we should have seen massive sales of corporate stock in the speculative boom of the late 1990s, as was in fact the case of US industrial corporations in the speculative boom of the late 1920s when corporations took advantage of the speculative stock market to pay off corporate debt or bolster their corporate treasuries (O'Sullivan 2004).

Instead, in the boom of the late 1990s corporate executives as *personal investors* sold their own stock to reap speculative gains (often to the tune of tens of millions). Yet, if anything, these same corporate executives as *corporate decision-makers* used corporate funds to repurchase their companies' shares in the attempt to bolster their stock prices – to their own personal gain. Given the fact that in the United States companies are not required to announce the dates on which they actually do open market repurchases, there is an opportunity for top executives who have this information to engage in insider trading by using this information to time option exercises and stock sales (see Fried 2000 and 2001).

Indeed, as a complement to the SEC's Rule 10b-18 of 1982, in 1991 SEC made a rule change that enabled top executives to make quick gains by exercising their stock options and immediately selling their shares. Under Section 16(b) of the 1934 Securities Exchange Act corporate directors, officers or shareholders with more than 10 percent of the corporation's shares are prohibited from making "short-swing" profits through the

⁶ In 2003 the SEC amended Rule 10b-18 "to simplify and update the safe harbor provisions in light of market developments since the Rule's adoption." The amendments also required that in their 10-Q filings with the SEC companies report the number and value of share repurchased in the previous quarter and the average price paid per share. See <http://www.sec.gov/rules/final/33-8335.htm>.

purchase and the subsequent sale of corporate securities within a six-month period. As a result, top executives who exercised stock options had to hold the acquired shares for at least six months before selling them. Treating a stock option as a derivative, the SEC deemed that the six-month holding period required under Section 16(b) was from the grant date, not the exercise date (Rosen 1991). The new rule eliminated the risk of loss between the exercise date and the sale date, and gave top executives flexibility in their timing of option exercises and immediate stock sales so that they could personally benefit from, among other things, price boosts from buybacks.

There are a number of ways in which stock options as a mode of executive compensation can be abused. A company might reprice options that are underwater by cancelling an existing option and replacing it with a new option with a lower exercise price (Chance et al. 2000; Ellig 2007, 434-435). As a result, an executive may be able to reap gains from stock-option grants even when the company's stock price declines. In 2006 a scandal broke out over the practice of backdating stock options – that is, granting option awards today as if they were granted at an earlier date when the market price of the stock and hence the exercise price of the options were lower (Lie 2005; Forelle and Bandler 2006; Bernile and Jarrell 2009).

The more fundamental problem with US-style stock options, however, is that they are unindexed; that is, they virtually never carry any performance criteria that would only permit an executive to gain from the exercise of stock options when the company's stock-price increases are greater than those warranted by productive performance (Bebchuk and Fried 2004). As a result, an executive, or any other employee with stock options, can gain from a speculative stock market as distinct from an improvement in the company's productive performance.

In addition, as we have seen, executives can augment their stock-option gains by allocating corporate resources to do buybacks, the sole purpose of which is to manipulate the company's stock price. Some of the stock-based compensation of US executives is undoubtedly attributable to innovation, although even then there is the question of whether the stock-based compensation that executives secure is equitable relative to other contributors to the innovation process. Be that as it may, since the last half of the 1990s it has been speculation and manipulation that have been the main drivers of the explosion in the pay of US corporate executives.

Table 2 shows the average compensation of the highest paid corporate executives in the United States, and the percent of that compensation derived from exercising stock options (the difference between the stock-option exercise price and the market price of the stock on the exercise date). Also included in Table 2 are the S&P 500 Index (with over 80 percent of its component stocks being NYSE) and NASDAQ Composite Index to illustrate the positive correlation of stock-price performance with both the level of executive pay and the proportion of that pay derived from stock-option exercises. The impact of NASDAQ on executive pay was especially strong in the late 1990s when speculation drove stock prices, whereas companies listed on NYSE as well as NASDAQ were engaged in large-scale stock repurchases that helped to push up the S&P 500 Index from 2003 to 2007.

Table 2. Total compensation of top executives of US-based corporations, average for 100, 500, 1500, and 3000 highest-paid executives, and the proportion of total compensation derived from gains from exercising stocks options, 1992-2009

Mean compensation in millions of 2009 US dollars

	S&P 500 Index	NAS- DAQ Index	NAS- DAQ/ S&P	Top 100		Top 500		Top 1500		Top 3000	
				Mean \$.m.	% SO	Mean \$.m.	% SO	Mean \$.m.	% SO	Mean \$.m.	% SO
1992	100	100	1.00	22.7	71	9.2	59	4.7	48	2.9	42
1993	109	119	1.10	20.9	63	9.0	51	4.7	42	3.1	36
1994	111	125	1.13	18.2	57	8.0	45	4.3	35	2.9	29
1995	131	155	1.18	20.5	59	9.6	48	5.2	40	3.4	34
1996	162	195	1.20	31.8	64	13.7	54	7.1	47	4.5	41
1997	210	243	1.16	43.3	72	18.2	61	9.3	55	5.8	49
1998	261	300	1.15	76.9	67	26.8	65	12.5	59	7.5	54
1999	319	462	1.45	68.8	82	27.4	71	13.2	63	7.9	57
2000	341	614	1.80	103.7	87	40.3	80	18.6	73	10.8	67
2001	284	332	1.17	62.1	77	23.6	66	11.3	58	6.8	53
2002	237	252	1.06	37.3	57	16.7	49	8.6	43	5.4	38
2003	232	275	1.18	48.2	64	20.9	55	10.7	48	6.7	43
2004	272	330	1.21	54.4	75	24.5	62	12.8	55	8.0	50
2005	290	348	1.20	66.3	78	28.1	63	14.2	56	8.9	51
2006	316	463	1.47	67.1	68	28.9	58	15.0	51	9.5	46
2007	354	428	1.21	59.4	69	27.3	58	14.5	50	9.3	45
2008	291	356	1.22	39.1	62	16.5	48	8.3	38	5.0	33
2009	227	307	1.35	29.6	44	13.9	27	7.7	17	5.0	12

S&P 500 Index and the NASDAQ Composite Index set to 100 in 1992 for purposes of comparison.

Total compensation (TDC2 in the Compustat database) is defined as “Total compensation for the individual year comprised of the following: Salary, Bonus, Other Annual, Total Value of Restricted Stock Granted, Net Value of Stock Options Exercised, Long-Term Incentive Payouts, and All Other Total”.

%SO means the percent of total compensation that the whole set (100, 500, 1,500, or 3,000) of highest-paid executives derived from gains from exercising stock options.

Note that company proxy statements (DEF 14A SEC filings) report the compensation of the company’s CEO and four other highest paid executives. It is therefore possible that some of the highest-paid executives who should be included in each of the “top” categories are excluded. The mean compensation calculations are therefore lower bounds of actual average compensation of the highest paid corporate executives in the United States.

Sources: Standard and Poor’s Compustat database (Executive Compensation, Annual); Yahoo! Finance at <http://finance.yahoo.com> (Historical Prices, Monthly Data).

As can be seen in Table 2, large proportions of these enormous incomes of top executives have come from gains from cashing in on the ample stock option awards that their boards of directors have bestowed on them.⁷ The higher the “top pay” group,

⁷ A stock option award gives an employee the non-transferable right to purchase a certain number of shares of the company for which he or she works at a pre-set “exercise” price between the date the option “vests” and the date it “expires”. Typically in US option grants, the exercise price is the market price of

the greater the proportion of the pay of that group that was derived from gains from exercising stock options. For the top 100 group in the years 1992-2008, this proportion ranged from a low of 57 percent in 1994, when the mean pay of the group was also at its lowest level in real terms, to 87 percent in 2000, when the mean pay was at its highest. In 2000 the mean pay of the top 3000 was, at \$10.8 million, only ten percent of the mean pay of the top 100. Nevertheless, gains from exercising stock options accounted for 67 percent of the total pay of the top 3000 group.

Note in Table 2 how the average pay of the highest paid corporate executives has risen and fallen with the fluctuations of major stock market indices. In the 1980s and 1990s, as was shown earlier in Table 1, high real stock yields characterized the US corporate economy. These high yields came mainly from stock-price appreciation as distinct from dividends yields, which were low in the 1990s despite high dividend payout ratios.⁸ With the S&P 500 Index rising almost 1,400 percent from March 1982 to August 2000, the availability of gains from exercising stock options became almost automatic. Given the extent to which the explosion in US top executive pay over the past three decades has been dependent on gains from exercising stock options, there is a need to understand the drivers of the stock-price increases that generate these gains.

If the stock-based character of executive pay creates a powerful incentive for top executives to allocate corporate resources to stock buybacks, the question remains of how and to what extent stock buybacks have affected investments in innovation and job creation. In work reported elsewhere, I have examined how buybacks have adversely affected the delivery of higher quality, lower cost products in a range of industries from oil refining to health insurance (Lazonick 2009b; 2010c). Under any circumstances, an economy needs investment in innovation to generate economic growth. What renders the US economy particularly fragile is that over the past three decades the financialization of the industrial corporation has gained strength even as major structural changes in US employment that have eroded the opportunities for middle-class jobs.

the stock at the date that the option is granted; vesting of the option occurs in 25% installments at each of the first four anniversaries from the grant date; and the expiration date of the option is ten years from the grant date. Unvested options usually lapse 90 days after termination of employment with the company.

⁸ In the 1980s dividends paid out by US corporations increased by an annual average of 10.8 percent while after-tax corporate profits increased by an annual average of 8.7 percent. In the 1990s these figures were 8.0 percent for dividends (including an absolute decline in dividends of 4.0 percent in 1999, the first decline since 1975) and 8.1 percent for profits. The dividend payout ratio – the amount of dividends as a proportion of after-tax corporate profits (with inventory evaluation and capital consumption adjustments) – was 48.9 percent in the 1980s and 55.0 percent in the 1990s compared with 39.5 percent in the 1960s and 41.6 percent in the 1970s. From 2000 to 2009 the dividend payout ratio was 61.5 percent, including a record 70.4 percent in 2007.

4. Disappearance of Middle-Class Jobs

During the post-World war II decades, for both blue-collar and white-collar workers, the “retain-and-reinvest” norm in Old Economy corporations was career employment with one company. When layoffs occurred, they tended to be temporary and, in unionized workplaces, on a last-fired, first-fired basis. Supported by a highly progressive income tax system, countercyclical government economic policy sought to reduce the severity of business fluctuations, while government spending, particularly on higher education, advanced technology and physical infrastructure, complemented the employment opportunities provided by the business sector. The result was relatively equitable and stable economic growth from the late 1940s to the beginning of the 1970s (Lazonick 2009a, chapters 1 and 3).

From the late 1970s, however, in industries that had been central to US innovation, employment, and growth, US corporations faced formidable Japanese competition. The Japanese challenge came in industries such as automobiles, consumer electronics, machine tools, steel, and microelectronics in which the United States had been a world leader. The critical source of Japan’s competitive advantage over the United States was “organizational integration”; through the hierarchical integration of shop-floor workers and the functional integration of technical specialists into processes of organizational learning, the Japanese perfected the US Old Economy business model (Lazonick 1998 and 2010a). Even though unionized blue-collar workers in the United States had a high degree of job security in the post-World War II decades, they had historically been excluded from the processes of organizational learning that occurred within the managerial organization. In sharp contrast, the hierarchical integration of shop-floor workers into the organizational learning processes that generated higher quality, lower cost products was the prime source of Japanese competitive advantage. Complementing the hierarchical integration of shop-floor workers, the collaboration of Japanese technical specialists in solving productivity problems in manufacturing encouraged the functional integration of their skills and efforts, again in contrast to the relatively high degree of functional segmentation of technical specialists in the United States.

The particular impacts of Japanese competition varied markedly across US industries. It virtually wiped out the US-based consumer electronics industry. For example, in 1981 RCA was the one of the leading consumer electronics company in the world, and the 44th largest US industrial company by revenues with employment of 119,000. By 1986 it had been taken over by General Electric and sold off in pieces (Chandler 2001, ch. 2 and 3). During the 1980s the US automobile manufacturers attempted to learn from the Japanese, but in the 2000s they were still producing lower quality, higher cost cars, and, not surprisingly, had lost significant market share (Platzer and Harrison 2009; WardsAuto.com 2009). In the machine tool industry, the overwhelming success of the Japanese against the major US companies was followed from the 1990s by the emergence of export-oriented small- and medium-sized enterprises producing for specialized niche markets (Kalafsky and MacPherson 2002). In the steel industry, the innovative response of the United States was the emergence of independent minimills, using electric arc furnaces and scrap metal. In the 1980s, the minimills only had the technological capability to manufacture long products (e.g., bars), but, led by Nucor, the introduction of

compact strip production technology from 1989 enabled the minimills to compete with integrated mills in flat products (e.g., sheets) as well (Giarratani et al. 2007).

The most important and successful US response to Japanese competition was in the semiconductor industry. By the middle of the 1980s, the Japanese had used their integrated skill bases to lower defects and raise yields in the production of memory chips, forcing major US semiconductor companies to retreat from this segment of the market (Burgelman 1994; Okimoto and Nishi 1994). Led by Intel and its microprocessor for the IBM PC and its clones, US companies became world leaders in chip design. Indeed, the IBM PC and its “Wintel” architecture laid the basis for the rise of NEBM, which by the 2000s had relegated OEEM to history (Borras and Zysman 1997; Lazonick 2009a and 2009b).

The adverse impact of Japanese competition on US employment became particularly harsh in the double-dip recession of 1980-1982 when large numbers of good blue-collar jobs disappeared, as it turned out permanently, from US industry (Bednarzik 1983). Previously, in a more stable competitive environment, US manufacturing companies would lay off workers with the least seniority in a downturn and re-employ them when economic conditions improved. Now companies were much more likely to shutter whole plants (Harris 1984; Hamermesh 1989). From 1980 to 1985 employment in the US economy increased from 104.5 million to 107.2 million, or by 2.6 percent. But employment of operators, fabricators, and laborers fell from 20.0 million to 16.8 million, a decline of 15.9 percent (US Department of Commerce 1983, 416; and 1986, 386).

As Daniel Hamermesh (1989, 53) summed it up: “Each year during the eighties, plant closings in the U.S. displaced roughly one-half million workers with three-plus years on the job.” Over the course of the 1980s the stock market came to react favorably to permanent downsizings of the blue-collar labor force (Abowd et al. 1990; Palmon et al. 1997). While terminations could represent the initial stage of restructuring that could enhance the long-run competitiveness of a company, in what became known as the “deal decade” of the 1980s (Blair 1993), downsizing was often the result of attempts by corporate executives and corporate raiders to “create shareholder value” (Lazonick 2004a). As secure middle-class jobs for high-school-educated blue-collar workers permanently disappeared, there was no commitment on the part of those who managed US industrial corporations or the Republican Administrations that ruled in the 1980s to invest in the new capabilities and opportunities required to upgrade the quality and expand the quantity of well-paid employment opportunities in the United States on a scale sufficient to reestablish a regime of reasonably equitable and stable economic growth.

Among blue-collar workers, black workers were extremely hard hit by the rationalization of employment in the 1980s. They were overrepresented in the Old Economy manufacturing sectors such as steel, autos, and consumer electronics that were in decline and underrepresented in the New Economy sectors related to the microelectronics revolution that were on the rise. Besides losing jobs when plants were closed, many blacks had recently moved into unionized jobs so that when some workers in an establishment were laid off, they tended to be last hired and hence first fired (see Kletzer

1991; Sharpe 1993; Fairlie and Kletzer 1998). As William Julius Wilson (1996-1997) argued, the disappearance of these jobs had devastating impacts on the abilities and incentives of blacks to accumulate the education and experience required to position themselves for well-paid and stable employment opportunities.

In historical retrospect we now know that the recoveries that followed the recessions of 1990-1991, 2001, and 2007-2009 were “jobless”. The recovery from the recessionary conditions of 1980-1982 was not “jobless” because employment opportunities created by the microelectronics boom in the first half of the 1980s offset the joblessness that remained in the traditional manufacturing sector as the US economy began to grow. For example, from 1980 to 1985 employment of mathematical and computer engineers increased from 330,000 to 571,000, or by 73.0 percent, and employment of computer programmers increased from 318,000 to 534,000, or by 67.9 percent (US Department of Commerce 1983, 416; and 1986, 385).

In particular, the recovery from the recession of 1980-1981 saw the emergence of what would become the Wintel architecture around the IBM PC. In 1982 IBM’s PC sales were \$500 million and just two years later 11 times that amount, more than triple the 1984 revenues of its nearest competitor, Apple, and about equal to the revenues of IBM’s top eight rivals. Subsequently, the very success of the IBM PC combined with open access to the Microsoft operating system and Intel microprocessor meant that, in the last half of the 1980s and beyond, IBM lost market share to lower priced PC clones produced by New Economy companies such as Compaq, Gateway, and Dell (Chandler 2001, pp. 118–119, 142–143).

As a result of the microelectronics revolution of the 1980s, these New Economy companies in the information and communication technology (ICT) industries found themselves in competition for labor with Old Economy ICT companies such as Hewlett-Packard, IBM, Motorola, Texas Instruments, and Xerox that offered employees the realistic prospect of a career with one company. As young firms facing a highly uncertain future, it was impossible for New Economy companies to attract labor away from Old Economy companies by promises of career employment. Instead NEBM used the inducement of employee stock options to attract and retain employees, very high proportions of whom were college-educated. As the successful New Economy companies grew large most if not all employees were partially compensated in stock options. For example, Cisco Systems had 250 employees in 1990, the year in which it did its IPO. A decade later, after it had come to dominate the Internet router market, it had over 34,000 employees, virtually all of whom received stock options (Lazonick 2009a, ch. 2).

So that stock options would perform a retention function as well as an attraction function, the practice evolved in New Economy firms of making option grants annually, with the vesting period for any annual block of option grants being 25 percent of the grants at the end of each of the first four years after the grant date. Once the options are vested, they can typically be exercised for a period of 10 years from the grant date, so long as one remains with the company. Without creating the Old Economy expectation among employees of lifelong careers with the company, the perpetual pipeline of unvested options functions as a tangible retention mechanism. Indeed, for most employees, the

amount of options that an individual can expect to receive is tied to his or her position in the firm's hierarchical and functional division of labor, so that the retention function of stock options is integrally related to the employee's career progress within the particular company. At the same time, under NEBM there is no expectation as there was under OEBM of a career with one company (Lazonick 2009a, chs. 2 and 4).

An Old Economy company valued career employees because they had experience in the development and utilization of the company's proprietary technologies. At many of the leading companies, the corporate R&D lab was the leading source of this intellectual property. Investment in new products and processes was often done on military contracts, with the adaptation of the technologies to commercial production as process technologies improved and potential unit costs declined. As Old Economy companies, taken together, passed on some of their productivity gains to their employees in the forms of higher wages, they supported the growth of mass markets on which they could attain high capacity utilization of their existing productive capabilities and for which they could develop new products.

The first jobless recovery in the early 1990s reflected the marketization of the employment relation that was integral to the transition from OEBM to NEBM. The downturn of 1990-1991 is known as a "white-collar recession". Although in absolute terms, blue-collar workers suffered more unemployment than white-collar workers during this recession, the extent to which professional, technical, and administrative employees were terminated was unprecedented in the post-World War II decades (Eberts and Groshen 1991; Gardner 1994). It also marked the beginning of the end of the career-long employment security that people in their 40s and 50s had come to expect under OEBM.

Given its size, reputation, and central position in the ICT industries, IBM's transformation from OEBM to NEBM in the early 1990s marked a fundamental juncture in the transition from employment security to employment insecurity in the US corporate economy. Through the 1980s IBM touted its practice of "lifelong employment" as a source of its competitive success. From 1990 to 1994, IBM cut employment from 373,816 to 219,839, reducing its labor force to only 59 percent of its year-end 1990 level. During this period, much of IBM's downsizing was accomplished by making it attractive for its employees to accept voluntary severance packages, including early retirement at age 55. In 1993 and 1994, however, after recruiting CEO Louis V. Gerstner, Jr. from RJR Nabisco to get the job done, many thousands of IBM employees were fired outright. In 1995 IBM rescinded the early-retirement offer that had helped downsize its labor force; the offer had accomplished its purpose, and in any case, IBM no longer wanted to encourage all employees to remain with the company even until the age of 55 (Lazonick 2009a, ch. 3).

Of IBM's losses of \$15.9 billion in 1991-1993 (including an \$8.1 billion deficit in 1993, the largest annual loss in US corporate history at the time), 86 percent came from workforce-related restructuring charges (including the cost of employee separations and relocations) – in effect the cost to the company of ridding itself of its once-hallowed tradition of lifelong employment. Other restructuring charges, mainly for the consolidation of manufacturing capacity and elimination of excess space – both part and

parcel of the massive downsizing process – amounted to \$10.6 billion over the three years. Ignoring restructuring charges, IBM recorded positive net incomes before taxes of \$939 million in 1991, \$2,619 million in 1992, and \$148 million in 1993. Although IBM continued to downsize at a torrid pace in 1994, most of it was done outside the United States and without voluntary severance provisions. During 1994 the company booked no restructuring charges and had after-tax profits of \$3,021 million. By that time, lifelong employment at IBM was a thing of the past.

In line with the IBM experience, for the period of 1992 to 1997, John Abowd and his co-authors (2007) found a general shift in US employment from older experienced workers to younger skilled workers related to the adoption of computer technologies. Using Current Population Survey data, Charles Schultze (1999, 10–11) discovered that “[m]iddle-aged and older men, for whatever reason, are not staying as long with their employers as they once did.” He went on to show, moreover, that the job displacement rate for white-collar workers relative to blue-collar workers had risen substantially in the 1980s and 1990s, starting at 33 percent in 1981–1982 and increasing to about 80 percent in the 1990s.

As Lori Kletzer (1998, 117) wrote in a 1998 survey article on “job displacement”:

Job loss rates fell steadily from the 1981–83 rate, which encompassed the recession of 1981–82, through the expansion period of 1983–89. Job loss rates then rose again in 1989–91 as the economy weakened. The latest job loss figures are surprising. In the midst of a sustained (if uneven) expansion, 1993–95 job loss rates are the highest of the 14-year period: about 15 percent of U.S. workers were displaced from a job at some time during this three-year period. These high rates of job loss are consistent with public perceptions of rising job insecurity.

In a recent survey of changes in job security, Henry Farber (2008, 1) stated that “[t]here is ample evidence that long-term employment [with one company] is on the decline in the United States.” Using Current Population Survey data for 1973–2006, Farber (2008, 27) showed that in the 1990s and 2000s members of the US labor force experienced shortened job tenure, with the impact being most pronounced for males. Moreover, education and experience are no longer the guarantors of employment security that they once were. Using Displaced Worker Survey data to analyze rates of job loss, Farber (2008, 35) found that those with college educations had job loss rates 22 percent lower than those with high school educations in the 1980s, but only 12 percent lower in the 2000s. He also found that workers aged 45–54 had job-loss rates 19 percent higher than workers aged 20–24 in the 1980s, whereas the job-loss rates of the older age-group were 58 percent higher than those of the younger age group in the 2000s.

By the 2000s globalization had joined rationalization and marketization as a source of structural change in the employment opportunities available to members of the US labor force. In the ICT industries that were central to the growth of the US economy in the 1980s and 1990s, the globalization of employment dated back to the 1960s when US semiconductor manufacturers had set up assembly and testing facilities in East Asia, making use of low-paid but literate female labor (Lazonick 2009a, ch. 5). Over time, a

combination of work experience at home with both multinational and indigenous companies as well as the return of nationals who had acquired graduate education and/or work experience abroad enhanced the capabilities of the Asian labor force to engage in higher value-added activities. By the beginning of the 2000s Indians had become world leaders in the offshore provision of IT services while the Chinese had become adept in a wide range of manufacturing industries, especially in ICT. In the 2000s the availability of a capable college-educated labor supply along with enhanced and low-cost communication technology led to a vast acceleration of offshoring by US companies to China and India (Bronfenbrenner and Luce 2004; Bednarzik 2005; Blinder 2007; Hira and Hira 2008; Houseman 2009).

Offshoring accelerated in the recession of 2001 and in the subsequent jobless recovery that stretched into 2003. Now well-educated high-tech workers found themselves vulnerable to displacement as US-based companies hired workers abroad (Garner 2004; Jensen and Kletzer 2005). Given huge increases in the issuance of non-immigrant (H-1B and L-1) work visas in the United States in the late 1990s and beginning of the 2000s, there were hundreds of thousands of high-tech workers, especially Indians, who had accumulated US work experience that they could now take back home. In February 2003, after more than a year of jobless recovery, BusinessWeek (Engardio et al. 2003) gained considerable attention when its cover blared the rhetorical warning: “Is Your Job Next”. The subhead read: “A new round of globalization is sending upscale jobs offshore. They include chip design, engineering, basic research – even financial analysis. Can America lose these jobs and still prosper?”

For three decades now the US economy has been losing unionized blue-collar jobs. In 2009 the US rate of business-sector unionization was 7.2 percent, having declined steady from over 15 percent in 1983 (US Department of Labor 2010). Since the early 1990s nonunionized white-collar workers, including professional, technical, and administrative employees who are deemed to be members of “management”, have found that they can no longer expect that they will have a career with one company. The shifts to open systems technologies and the globalization of high-tech jobs have rendered vulnerable the employment of well-educated and highly experienced members of the labor force.

As stated previously, the displacement of workers from middle-class jobs often has a productive rationale: manufacturing plants may become uncompetitive; recently educated workers may possess more relevant skills than experienced (older) workers; the productivity of workers in low-wage areas of the world may be as high or higher than that of workers in the United States. Nevertheless, especially once changes in the structure of employment have become widespread for productive reasons, corporations have been known to terminate employees in order to increase short-term profits for the sake of inciting speculative increases in their company’s stock price. The tendency has then been to allocate those extra profits to stock buybacks so that manipulation as well as speculation can drive up the price of the company’s stock. Legitimizing both the elimination of existing jobs and the failure to create new jobs is the ideology that companies should be run to “maximize shareholder value”.

Unlike the recession of 1980-1982, 1990-1991, and 2001, the Great Recession of 2008-2009 was a purely financial downturn caused by speculation and manipulation in the financial sector of the economy. At the same time, that speculation and manipulation exploited the fragility of homeownership in an economy that since the 1980s had been eliminating middle-class jobs from the industrial sector. The US labor force is now experiencing its third, and longest, jobless recovery. While Wall Street has become and remains a gambling casino, the more fundamental fragility of the US economy emanates from the industrial sector. As a general rule, the executives who run the financialized US industrial corporations seek to create profits for the sake of higher stock prices, not jobs for the sake of equitable and stable economic growth.

5. Sustainable Prosperity in the US Economy?

The objectives of government economic policy should be to support equitable and stable economic growth. Growth is equitable when those who contribute to the growth process receive a commensurate share of the gains. The equitable sharing of the gains from growth should occur at the level of the enterprise through its relations with employees, suppliers, distributors, and financiers. Tax policy should be designed to ensure that the government secures an equitable return from the business sector on government investments in physical and human infrastructure as well as subsidies that companies use to generate innovation and growth.⁹

When certain types of participants in the economy extract much more value than they create – that is, when the distribution of income is highly inequitable – the economy becomes unstable. The relation between consumption and production is thrown out of balance. Speculative investments are encouraged. Those who extract more than they create have an interest in manipulating financial markets to increase their own gain. Government policies should be designed to reduce the possibilities for excessive value extraction.

In this paper I have argued that the stock-based pay that enables corporate executives to gain from speculation and manipulation of the stock market makes the US economy not only inequitable but also unstable. To reap the gains from speculation and manipulation, executives often make resource allocation decisions such as financially-driven acquisitions and stock buybacks that ultimately undermine the conditions of innovative enterprise. At the same time, the US economy is highly dependent on innovative enterprise not only to generate economic growth but also to create sustainable employment opportunities for the population that can offset the middle-class jobs that through rationalization, marketization, and globalization the US economy has lost over the past three decades. Instead the financialization of the US corporation has exacerbated the loss of jobs from these structural changes in employment.

When there is job displacement because of rationalization, marketization, and globalization, business and government need to collaborate to ensure the availability of

⁹ Equity, which links income to productive contributions, must be distinguished from equality, which seeks to achieve a more The government may use tax policy, training programs, or regulations concerning access to jobs to achieve more economic equality – ability of the government to do so builds on an “equity” base

the education and training needed to reposition the displaced workers to perform new productive roles in the economy. The financialized corporation tends to opt out of this collaborative effort because it operates according to an ideology that argues that it has no responsibility for the unemployed. In doing so, the financialized corporation not only avoids a share of the cost of retraining its workers but also fails to participate in making the investments that can generate new and potentially sustainable middle-class jobs for the US labor force.

In my view, therefore, any government policy agenda that seeks to recreate the middle class in the United States needs to begin with an attack on the financialized corporation. This policy agenda then needs to engage in constructive programs in collaboration with a nonfinancialized business community to rebuild the capabilities of the US labor force to engage in innovative enterprise. The policy agenda for sustainable prosperity includes five major reforms:

1) *Banning of stock repurchases by established US corporations so corporate financial resources that could be allocated to innovation and job creation are not wasted for the purpose of manipulating a company's stock price.* Once one rejects the flawed ideology that for the sake of superior economic performance, corporations should be run to maximize shareholder value, it follows that stock repurchases by established corporations serve no legitimate economic purpose. Moreover corporate executives who can think of nothing better to do with the allocation of corporate resources should probably not be running the nation's corporations. Instead of being used to prop up stock prices, these funds can be a) invested in innovation in areas in which the company has competence, b) invested in new ventures that draw upon the knowledge and experience of corporate employees, c) returned to employees in the form of higher wages and benefits, d) returned to local, state, and national governments that have supported the growth of the company, and/or e) returned shareholders in the form of dividends.

2) *Indexing of employee stock options to an indicator of innovative performance so that executives cannot gain from speculation in and manipulation of their companies' stock prices.* It is generally accepted, by both proponents and opponents of shareholder-value ideology, that corporate executives in the United States have developed an obsession with meeting Wall Street's expectations of quarterly earnings per share targets. It is also generally the case that in their resource allocation decisions (be it their own human capital or the resources over which they exercise control in a corporation) people will respond to financial incentives, especially when the society deems those financial incentives as not only legitimate but also consistent with the common good. Remuneration in the form of unindexed stock options that can be sold as soon as they are exercised gives the US corporate executive a strong incentive to make allocative decisions that result in speculation in and manipulation of his or her company's stock price. Shareholder-value ideology legitimizes both stock buybacks and stock-based remuneration. Regulations that tie stock-based compensation to gains from innovation and exclude gains from speculation and manipulation are required to remove this perverse incentive.

3) *Regulation of the employment contract to ensure that workers who contribute to the innovation process share in the gains to innovation.* It is inherent in the innovation process that investments of productive resources, including skill and effort of workers, are made today with the expectation of financial returns on these investments in the future. Those who contribute their labor and capital to the innovation process have a legitimate claim to an equitable share in the gains to innovation if and when they occur. Since innovation is a collective, cumulative, and uncertain process, it follows that the incentives of workers to contribute their skill and effort to innovation depends on their expectation that these future returns will be forthcoming. At the same time, however, for these returns to be in fact equitable, they cannot be treated as an entitlement of employment. A “theory of innovative enterprise” is an essential intellectual foundation for the intelligent regulation of the employment contract so it is based on norms of distribution of the gains from innovative enterprise that are consistent with equitable and stable economic growth.

4) *Creation of work programs that make productive use of and enhance the productive capabilities of educated and experienced workers whose human capital would otherwise deteriorate through lack of other relevant employment.* Although there is little in the way of systematic evidence on the subject, there is no doubt that the combination of marketization and globalization has resulted in the displacement of large numbers of well-educated and highly experienced workers in their 40s and 50s whose accumulated human capital will obsolesce unless they are quickly reemployed in jobs that can make use of it. Such a diminution in the stock of highly qualified human capital poses a high cost not only to the individuals concerned but also to society which to some extent will have subsidized the investment in this human capital and which stands to continue to benefit from it if that investment in human capital can be put to productive use. This employment may be in the business sector or the government sector, but either way effective programs will require business-government collaboration that will maintain and enhance the capabilities of workers so that they can make productive contributions to the economy and earn decent incomes for themselves.

5) *Implementation of taxes on the gains from innovation to fund those government agencies that need to invest in the public knowledge base required for the next round of innovation.* The prevailing ideology that the free operation of markets tends to result in superior economic performance ignores not only the role of the innovative enterprise in generating higher quality, lower cost products but also the role the developmental state in investing in human and physical infrastructures that support the innovation process. MSV ideology appropriates for shareholders the returns to innovation that should go not only to employees but also to the state. Notwithstanding the dominance of an ideology that says that the government should play little if any role in the allocation of productive resources – what I have called “the myth of the market economy” (Lazonick 1991) – over the course of the twentieth century the US government was the most formidable “developmental state” in history. In every high-tech field in which the United States has been a leader it has been the result of a combination of resource allocation by the innovative enterprise and the developmental state.

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It will be very difficult to justify these reforms if Americans do not question the ideology that companies should be run to “maximize shareholder value”. It is an ideology that results in inequity and instability and that ultimately undermines the productive foundations of economic growth. While MSV has currency throughout the world, its pervasive and unquestioned acceptance has become an almost uniquely American phenomenon. The United States is engaged in global competition with nations in which MSV ideology does not hold sway. As long as US-based corporations are permitted to be governed by this ideology, the US economy will remain incapable of generating middle-class jobs on the scale that is needed to restore sustainable prosperity. Indeed, judging from the changes in employment that have occurred in the US economy over the past three decades, the achievement of equitable and stable growth will become more and more out reach.

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