

The Quest for Shareholder Value: Stock Repurchases in the US Economy

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ABSTRACT

During the 1980s and 1990s the argument that “maximizing shareholder value” results in superior economic performance came to dominate the corporate governance debates. In this paper, I outline the rationale for the shareholder-value perspective, and show that, rooted in agency theory, it lacks a theory of innovative enterprise. Hence it cannot be used to analyze the conditions under which the stock market supports or undermines the process of value-creation. To go beyond agency theory and its shareholder-value perspective, I present a framework for analyzing the functions of the stock market in the business corporation and the influence of these functions on the social conditions of innovative enterprise. I then use this framework to explain why in the United States since the 1990s there has been a widespread trend in corporate stock repurchases, including a sharp acceleration in buybacks since 2003. Focusing on a list of the largest corporate repurchasers in the United States, I raise questions concerning the relation between stock buybacks and value-creating investments in the US economy as a whole. I conclude with a discussion of why companies do stock repurchases, and in particular whether they can be justified as a contribution to innovative enterprise. I argue that the ultimate justification for stock repurchases is the ideology of “maximizing shareholder value” – an ideology that works to the direct benefit of corporate executives who make corporate resource allocation decisions and who derive high levels of remuneration from munificent stock option awards.

1. Innovative Enterprise and “Shareholder Value”

In all of the richest economies, business corporations are repositories of large, and in many cases vast, quantities of resources over which corporate managers, rather than markets, exercise allocative control. Indeed, it can be argued that corporate control, as distinct from market control, of resource allocation represented the defining institutional characteristic of twentieth-century capitalist economies (Chandler 1977 and 1990). Whereas the neoclassical theory of the market economy maintains that markets should allocate resources to achieve superior economic performance, the actual pervasiveness of corporate control over resource allocation demands a theory of the ways in which corporate governance affects economic performance.

During the 1980s and 1990s the argument that “maximizing shareholder value” results in superior economic performance came to dominate the corporate governance debates. This shareholder-value perspective represents an attempt to construct a theory of corporate governance that is consistent with the neoclassical theory of the market economy. Like the theory of the market economy, however, the shareholder-value perspective lacks a theory of innovative enterprise (see O’Sullivan 2000; Lazonick 2003b and 2007b). The result is that, as I argue in this paper, the shareholder-value perspective on corporate governance fails to comprehend how and under what conditions the corporate allocation of resources supports or undermines investment in innovation.

In Section Two of this paper, I outline the theoretical rationale for the shareholder-value perspective, and show that it lacks a theory of innovative enterprise. In Section Three, I provide a critique of the shareholder-value perspective based on the ways in which an innovative corporate economy, including the stock market through which public shareholders participate in the corporation, actually operates. In Section Four, I outline an approach to analyzing the functions of the stock market – described alliteratively as “creation”, “control”, “combination”, “compensation”, and “cash” -- in the business corporation. In Sections Five through Nine, I explore the influence of these functions on innovative enterprise, culminating in the “negative cash” function of the stock market that results from stock repurchases. In Section Ten, I conclude by asking why companies repurchase their own stock, and what impact repurchases have on innovative enterprise.

2. Maximizing Shareholder Value

For adherents of the theory of the market economy, “market imperfections” -- for example, “asset specificity” in the work of Oliver Williamson (1985 and 1996) -- necessitate managerial control over the allocation of resources, thus creating an “agency problem” for those “principals” who have made investments in the firm. The agency problem derives from two limitations, one cognitive and the other behavioral, on the human ability to make allocative decisions. The cognitive limitation is “hidden information” (also known as “adverse selection” or “bounded rationality”) that prevents investors from knowing *a priori* whether the managers whom they have employed as their agents are good or bad resource allocators. The behavioral limitation is “hidden action” (also known as “moral hazard” or “opportunism”) that reflects the proclivity, inherent in an individualistic society, of managers as agents to use their positions as resource allocators to pursue their own self-interests and

not necessarily the interests of the firm's principals. 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 (O'Sullivan 2000 and 2002). 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. The agency problem – the fact that public shareholders as the (purported) "principals" who bear risk are obliged to leave the corporate allocation of resources under the control of managers as their "agents" – poses a constant threat to the efficient allocation of resources.

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 shareholders 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 (1986, 324) 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. 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" (Jensen 1986, 323), and distributing the remainder of corporate revenues to shareholders in the forms of dividends and/or stock repurchases.

3. A Critique of the Shareholder-Value Perspective

During the 1980s and 1990s "maximizing shareholder value" became the dominant ideology for corporate governance in the United States, and, through a variety of institutional channels, gained acceptance around the world. Top managers 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 and O'Sullivan 2000a). According to one study, the value of stock options accounted for 19 percent of CEO compensation in large US corporations in 1980, but 48 percent in 1994 (Hall and Leibman 1998, 661). A more recent study of CEO remuneration in S&P 500 companies found that average compensation in 2003 dollars rose from \$3.5 million in 1992 to a peak of \$14.8 million in 2000, declining to \$8.7 million in 2003 (Jensen et al. 2005, 33). The value of stock options accounted for 28 percent of this pay in 1992, 49 percent in 2000, and 38 percent in 2003. Of the change in pay from 1992 to 2000, 10.5 percent came from salaries, 15.4 percent from bonuses, and 56.7 percent from stock options. Of the decline in pay from 2000 to 2003, 14.1 percent came from salaries, 11.2 percent from bonuses, and 65.0 percent from stock options. It has been estimated that, largely as a result of gains from the exercise of stock options, the ratio of the pay of CEOs of major US corporations to that of the average worker increased from 42:1 in 1980 to 85:1 in 1990 to 531:1 in 2000 (see Dash 2006). Notwithstanding the less ebullient stock markets that prevailed in the first half of the 2000s, this ratio stood at 411:1 in 2005 and 364:1 in 2006.¹

The long stock market boom of the 1980s and 1990s combined with the remuneration decisions of corporate boards to create this bonanza for corporate executives. During the

¹ <http://www.aflcio.org/corporatewatch/paywatch/pay/index.cfm>;
<http://www.aflcio.org/issues/jobseconomy/ceopay.cfm>.

decade of the 1970s the stock market had languished, and inflation had eroded dividend yields. In the 1980s and 1990s, however, high real yields on corporate stock characterized the US corporate economy. As can be seen in Table 1, these high yields came mainly from stock-price appreciation as distinct from dividends yields, which were low in the 1990s despite high payout ratios. The form of yield is important to the mode of shareholding. A dividend yield provides the shareholder with an income by holding the stock, and hence promotes stable shareholding. A price yield, in contrast, can only be reaped if the shareholder sells his or her stock. When executives, or any other employees, exercise their stock options, they have an interest in selling the stock thus acquired to lock in the market gains (otherwise, unless they are at the end of the typical ten-year exercise period, they would have delayed the exercise of the options). High price yields and high levels of income from stock-based compensation go hand in hand.

Table 1. US corporate stock and bond yields, 1960-2007

Average annual percent change					
	1960-1969	1970-1979	1980-1989	1990-1999	2000-2007
Real stock yield	6.63	-1.66	11.67	15.01	0.96
Price yield	5.80	1.35	12.91	15.54	2.09
Dividend yield	3.19	4.08	4.32	2.47	1.64
Change in CPI	2.36	7.09	5.55	3.00	2.77
Real bond yield	2.65	1.14	5.79	4.72	3.42

Notes: Stock yields are for Standard and Poor's composite index of 500 US corporate stocks (about 75% of which are NYSE). Bond yields are for Moody's Aaa-rated US corporate bonds.

Source: Updated from Lazonick and O'Sullivan 2000a, using US Congress 2008, Tables B-62, B-73, B-95, B-196.

It should be noted that, as a whole, US corporations were not skimping on dividends in the 1980s and 1990s. It is simply that when a company's stock price increases, its dividend yield – the amount of dividends paid out as a percentage of the stock price – will fall unless the amount of dividends increases proportionately. 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 payout ratio – the amount of dividends as a percentage of after-tax corporate profits (with inventory evaluation and capital consumption adjustments) – averaged 48.4 percent in the 1980s and 56.5 percent in the 1990s compared with 38.8 percent in the 1960s and 41.3 percent in the 1970s. In 2000-2006 the payout ratio was 61.7 percent, and for the first three quarters of 2007 it was at an all-time high of 69.2 percent (US Congress 2008, B-90).

High stock yields reflected a combination of three distinct forces at work in the US corporate economy in the 1980s and 1990s: a) *redistribution* of corporate revenues from labor incomes to capital incomes, especially by older corporations, through a combination of downsizing of the labor force and increased distributions to shareholders in the forms of cash dividends and stock repurchases; b) *innovation*, especially by newer technology companies, that boosted earnings per share; and c) *speculation* by stock market investors, encouraged, initially at least, by stock price increases due to the combination of redistribution and innovation. An understanding of these three determinants of stock-price movements is essential for a critical

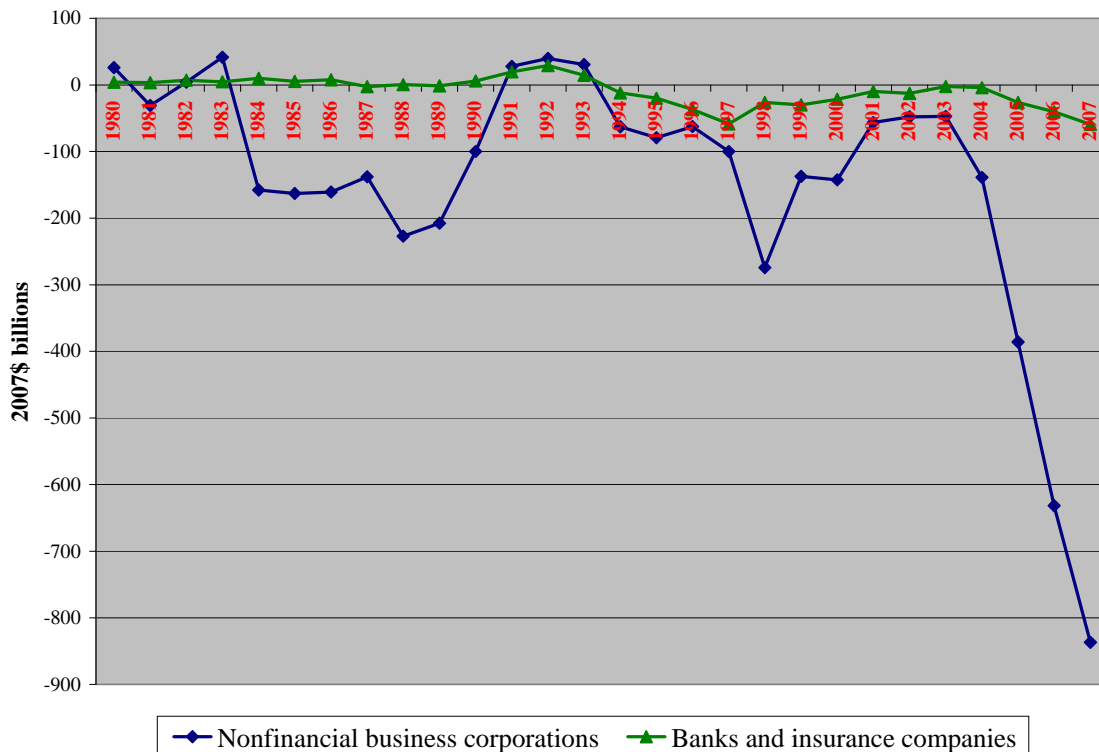
evaluation of the claim that “maximizing shareholder value” results in superior economic performance.

Firstly, in the 1980s and 1990s older companies, many with their origins in the late 19th century, engaged in a process of redistributing corporate revenues from labor incomes to capital incomes. Engaging in a “downsize-and-distribute” allocation regime, these companies downsized their labor forces and increased the distribution of corporate revenues to shareholders (Lazonick and O’Sullivan 2000a). As indicated earlier, this allocation regime represented a reversal of the “retain-and-reinvest” regime that had characterized these companies in the post-World War II decades; they had retained corporate revenues for reinvestment in organization and technology, expanding their labor forces in the process. Coming into the 1980s employees – both managerial personnel and shop-floor workers -- had expectations, based on over three decades of experience of “retain-and-reinvest”, of long-term employment with these corporations (Lazonick 2004 and 2007a). Downsizing augmented the so-called “free cash flow” that could be distributed to shareholders. In the early and mid-1980s, this redistribution of corporate revenues often occurred through debt-financed hostile takeovers, favored by the proponents of the “market for corporate control”. Post-takeover downsizing facilitated the servicing and retirement of the massive debt that a company had taken on (Shleifer and Summers 1988; Blair 1993).

From the mid-1980s the distribution of corporate revenues to shareholders increasingly took the form of corporate stock repurchases. As shown in Figure 1, in every year from 1994 through 2007 net equity issues of nonfinancial business corporations as well as commercial banks and insurance companies taken as a group were negative. In the Internet boom years of 1997-2000, the extent of this “negative cash function” of the stock market increased markedly as many companies sought to use repurchases to augment the positive impact of stock-market speculation on stock prices. Measured in 2007 dollars, net equity issues for nonfinancial corporations, banks, and insurers combined bottomed at -\$300 billion in 1998 before rising to -\$49 billion in 2003, the highest level in real terms since 1991. Since then, however, net equity issues have reached unprecedented levels, plunging to -\$143 billion in 2004, -\$412 billion in 2005, -\$672 billion in 2006, and -\$896 billion in 2007 (see Figure 1).

This “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. Later, we shall look directly at the role of stock buybacks among the companies included in the S&P 500 Index in driving these massive distributions to shareholders. And then, by considering the cases of particular companies in particular industries, I shall raise the question of whether the cash flow that has thus been disgorged has really been “free”.

Figure 1. Net corporate equity issues (billions of 2007 dollars) in the United States by non-financial corporate business and by selected financial sectors, 1980-2007



Source: Board of Governors of the Federal Reserve System, 2008.

Secondly, by creating new value, innovation boosted a company’s stock price. In contrast, by definition, redistribution transfers value from labor incomes to capital incomes, raising the stock price as, for example, workers are laid off and as wages and benefits are reduced, with no new value being created. During the 1980s and 1990s newer technology companies such as Intel, Microsoft, Oracle, Sun Microsystems, and Cisco Systems experienced significant growth in both revenues and employment by means of a “retain-and-reinvest” allocation regime; they retained corporate revenues, paying little if any dividends (although most of them did some stock repurchases during the 1990s), and reinvested earnings in innovative products and processes. In general, both the revenues and employment levels of these companies grew over this period, especially during the 1990s, and these companies were highly profitable (see Lazonick 2006a). Steadily rising stock prices reflected the realization of the gains of innovative enterprise by these companies.

Thirdly, sophisticated stock market investors recognized that the combination of redistribution and innovation provided a real foundation for stock price increases, and speculated on further upward movements. Other less knowledgeable investors followed suit. From the fourth quarter of 1985 to the third quarter of 1987, and then more significantly from the first quarter of 1995 to the third quarter of 2000, speculation became an increasingly important factor in the rise of stock prices. Professional insiders, within corporations and on Wall Street, encouraged and generally gained from this speculation because of the existence of a long queue of unprofessional outsiders who bought shares at inflated prices, implicitly

assuming that “greater fools” than themselves remained ready to buy the over-priced shares on the market. At some point, however, the “greatest fools” were left holding these shares, as happened in the fourth quarter of 1987 and, more profoundly, from the fourth quarter of 2000 when stock prices fell precipitously. With the continued fall in stock prices in 2001, the speculation that helped to sustain the longest “bull run” in US stock market history was put to rest.

The “behavioral” school in financial economics has recognized the importance of stock market speculation as a determinant of stock prices, but has not in general embraced the “greater fools” perspective. For example, in a best-selling book published at the height of the Internet boom, financial economist Robert Shiller (2000) characterized the stock market bubble as “irrational exuberance”. Shiller (2000, 18) made the assumption that all players on the stock market, professionals and non-professionals, have access to the same information, implying that irrational exuberance is a general phenomenon among stock-market investors. Yet the assumption is contradicted by widespread use of inside information by professionals, as revealed in stock-fraud investigations in the aftermath of the Internet crash as well as in documents produced in numerous class action lawsuits by shareholders who bought shares and allegedly lost money because of false information provided by professional insiders. Investigations by the Securities and Exchange Commission have revealed the widespread corporate practices of backdating executive stock option awards to dates at which prices were lower and granting stock options to executives just ahead of “good news” announcements that could be expected to boost the company’s stock price, both of which served to increase the gains of corporate executives from stock options (Lie 2005; Forelle and Bandler 2006; Fried 2008b). Insofar as insiders have the incentive and ability to manipulate stock market prices in these ways for their own personal gain, their exuberance is anything but “irrational”.

Under the heading, “Cultural Changes Favoring Business Success or the Appearance Thereof,” Shiller (2000, 22-24) recognized, but in my view understated, the incentive that top corporate executives, as the ultimate professional insiders, had to contribute to that speculation, given the importance of stock-based compensation to their pay packages. Ironically, after the crash, Michael Jensen, a leading academic proponent in the 1980s and 1990s of using stock-based compensation to align the interests of managers with shareholders (Jensen and Murphy 1990), chastised corporate executives for failing to say “no” to Wall Street, as, spurred on by the prospect of greater stock-based compensation, they had taken actions during the boom for the purpose of inflating stock prices (Fuller and Jensen 2002). Corporate insiders had much to gain, moreover, from the volatile stock market, not only as prices rose but also as they fell; while the outsiders continued to buy, the insiders sold (see for example, Gimein et al. 2002).

Especially in high-tech companies, it was not only top executives who stood to gain from an ebullient stock market. During the 1980s and 1990s growing numbers of employees acquired a direct interest in stock price increases as corporate stock became increasingly important as a mode of compensation. From the late 1930s US corporations had granted stock options to top executives, primarily to give them access to a form of compensation that would be taxed at the low capital-gains rate (Lazonick 2003a). From the 1960s, however, high-tech startups based in what would become known as Silicon Valley began to use stock options to lure technical and administrative personnel away from secure careers with established companies,

and subsequently to compete for these employees among themselves. By the 1980s and 1990s broad-based employee stock option plans had become widespread among newer technology companies, and in the late 1990s diffused to many older corporations, not only in the United States but also abroad, that competed for this highly mobile labor (Carpenter et al. 2003; Glimstedt et al. 2006). While top executives continued to get highly disproportionate shares of the stock options that a company allocated, a broad base of the high-tech labor force, especially in high-tech industries, acquired an interest in corporate policies aimed at “maximizing shareholder value”.

But did this financial behavior lead to a more efficient allocation of resources in the economy, as the shareholder-value proponents claim? There are a number of flaws in agency theory’s analysis of the relation between corporate governance and economic performance. These flaws have to do with a) a failure to explain how, historically, corporations came to control the allocation of significant amounts of the economy’s resources; b) the measure of “free cash flow”; and c) 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. These flaws are, moreover, amply exposed by the history of the industrial corporation in the United States, the national context in which agency theory evolved and in which it is thought to be most applicable.

Firstly, agency theory makes an argument for taking resources out of the control of inefficient managers without explaining how, historically, these corporations came to possess the vast amounts of resources over which these managers could exercise allocative control. From the first decades of the 20th century, the separation of share ownership from managerial control characterized US industrial corporations (Berle and Means 1932). This separation occurred because the growth of innovative companies demanded that control over the strategic allocation of resources to transform 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, and, enriched, to retire from their positions as top executives. The departing owner-entrepreneurs left control in the hands of senior salaried professionals, most of whom they had recruited decades earlier to help to build their 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 (Chandler 1977 and 1990). 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 (Lazonick 2004). 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 (see, for example, Patton 1988; Crystal 1991). 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.

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 a 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 the ideology of “maximizing shareholder value” 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 from the past (Lazonick and O’Sullivan 2000a).

Secondly, agency theory 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 formulaically, as Jensen does, 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 (Baldwin and Clark 1992).

Thirdly, 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. The argument that shareholders are the sole “residual claimants” is a deduction from the theory of the market economy. It does not, however, accord with the reality of the innovative enterprise. The argument that a party to a transaction receives contractually guaranteed returns may hold when, in an open, competitive market, one firm purchases a physical commodity as a productive input from another firm. But, as I elaborate below, one cannot assume contractually guaranteed returns when the inputs are made

available to business enterprises by the state. Nor can one make the assumption when the inputs are made available to the business enterprise in the form of the labor services of employees. Finally, once one recognizes that the innovative enterprise cannot be understood as a “nexus of contracts”, one can ask whether public shareholders actually perform the risk-bearing function that the proponents of agency theory claim.

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 a) 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 b) 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. As a 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; Abate 2000). Nor can one explain US dominance in biotechnology without recognizing the persistent investments of the National Institutes of Health in the knowledge base and the government subsidies provided to companies through legislation such as the Orphan Drug Act of 1983 (see Lazonick and Tulum 2008).

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. While these business enterprises may pay fees for these services – for example, the salary of an engineer whose education was supported in whole or in part by state funds – one would be hard put to show that there exists a nexus of contracts that guarantees the state a return on these investments for the productive contributions that the outputs of these investments make to the enterprises that use them. 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. Sometimes these subsidies have been built into the rates that firms in particular industries could charge as regulated monopolies. For selected industries, tariff protection has provided firms with the time to develop higher quality, lower cost products. 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. By definition, a “subsidy” lies beyond the realm of a market-mediated contract; one dictionary defines “subsidy” as “a grant paid by a government to an enterprise that benefits the public”.²

² <http://dictionary.reference.com/search?q=subsidy>.

Multitudes of business enterprises have benefited from these 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 have helped to finance.

Like the government, workers can also find themselves in the position of having made investments in their own productive capabilities that they supply to firms without a guaranteed contractual return. 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 the shareholder-value proponents do, that only shareholders bear risk and have "residual claimant" status, there will be an underinvestment in human capital to the detriment of not only workers but the economy as a whole.

For those concerned about the propensity of US corporations to "downsize-and-distribute", Blair's focus on investments in firm-specific human capital provides a "stakeholder" theory of the firm in which workers as well as shareholders should be viewed as "principals" for whose benefit the firm should be run. While accepting Blair's "stakeholder" amendment to the shareholder argument, however, a corporate executive intent on downsizing his labor force could logically argue that the productive capabilities of workers in, say, their 50s who had made investments in "firm-specific" human capital earlier in their careers have now become *old* because of competition from equally adept but more energetic younger workers or, alternatively, *obsolete* because of technological change. The executive could then argue that, in making investments in "firm-specific" human capital in the past, these (now) older workers had taken on the risk-bearing function, and like any risk-bearing investor must accept the possibility that their investments would at some point lose their market value.

The workers could respond by arguing that the corporate executive is wrong; that their accumulated capabilities are not old and obsolete, but rather, given a correct understanding of technological, market, and competitive conditions in the industry, remain critical to the innovation process. They might even, as "principals", accuse the executive, as their "agent", of acting opportunistically, perhaps because he has stock options that align his interests with shareholders. They might claim that what the proposed downsizing actually entails is a redistribution of income from labor to capital rather than a restructuring of the workforce for the purpose of innovation. Clearly, even from the workers' point of view, agency theory's concerns with hidden information and hidden action on the part of managers are relevant. The problem is that agency theory provides no guide to analyzing whether or not the executive is in fact acting innovatively or opportunistically because agency theory, like neoclassical economic theory more generally, has no theory of innovative enterprise.

Investments that can result in innovation require the strategic allocation of productive resources to particular processes to transform particular productive inputs into higher quality,

lower cost products than those goods or services that were previously available at prevailing factor prices. 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 innovation process until it generates the higher quality, lower cost products that permit financial returns (Lazonick 2007b).

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 (see O’Sullivan 2004; Lazonick and Tulum 2008). 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.

4. The Five Functions of the Stock Market and Innovative Enterprise

A business enterprise seeks to transform productive resources into goods and services that can be sold to generate revenues. A theory of the firm, therefore, must, at a minimum, provide explanations for how this productive transformation occurs and how revenues are obtained. Further, if such a theory purports to capture the essential reality of a modern capitalist economy, it must explain how, in competing for the same product markets, some firms are able to gain sustained competitive advantage over others. For a perspective on corporate governance to have any claim to relevance for understanding how a firm achieves superior economic performance, it must be rooted in a theory of innovative enterprise (for elaborations, see O’Sullivan 2000; Lazonick and O’Sullivan 2000b; Lazonick 2007b).

The innovation process is uncertain, collective, and cumulative. As a result, innovative enterprise requires *strategy, organization, and finance* (O’Sullivan 2000; Lazonick 2007b). The role of strategy is to confront uncertainty by allocating resources to investments that, by developing human and physical capabilities, can enable the firm to compete for specific product markets. The role of organization is to transform technologies and access markets to generate products that buyers want at prices that they are willing and able to pay. The role of finance is to sustain the accumulation of capabilities from the time at which investments in productive resources are made to the time at which financial returns are generated through the sale of products.

Innovation is a social process, supported in certain times and places by “social conditions of innovative enterprise”. Three distinct but interrelated social conditions – *strategic control*, *organizational integration*, and *financial commitment* -- can transform strategy, organization, and finance into social processes that result in innovation. The social conditions of innovative enterprise manifest themselves as social relations that, embedded in the business enterprise, are central to the performance of the firm.

Strategic control gives decision-makers the power to allocate the firm’s resources to confront the technological, market, and competitive uncertainties that are inherent in the innovation process. For innovation to occur, those who occupy strategic decision-making positions must have both the abilities and incentives to allocate resources to innovative investment strategies. Their abilities to do so will depend on their knowledge of how the current innovative capabilities of the organization over which they exercise allocative control can be enhanced by strategic investments in new, typically complementary, capabilities. Their incentives to do so will depend on the alignment of their personal interests with the interests of the business organization in attaining and sustaining its competitive advantage.

Those who exercise strategic control must be capable of understanding the technological, market, and competitive characteristics of the industries in which their firms are competing as well as the learning capabilities of the business organizations upon which they rely to implement their innovative investment strategies. This integration of strategic decision-makers into the business organization can break down because the firm overextends itself by expanding into too many lines of business, as happened for example in the US conglomerate movement of the 1960s. Those who exercise strategic control may no longer understand the organizational and technological requirements of the innovation process. If so, the corporate governance challenge is to find ways of reintegrating strategic decision-making with the learning organization.

The social condition that can make an organization innovative is *organizational integration*: a set of relations that creates incentives for people to apply their skills and efforts to generate higher quality, lower cost products than had previously been available. To develop high quality products, participants in the innovation process must engage in organizational learning. The more this learning is collective and cumulative, the higher the fixed costs of the learning process. If investments in organizational learning are to be a source of competitive advantage rather than disadvantage, the enterprise must generate sufficient sales to transform the high fixed costs of these investments into low unit costs (Lazonick 2007b). Modes of compensation (in the forms of promotion, remuneration, and benefits) are important instruments for integrating individuals into the organization. To generate innovation, however, a mode of compensation cannot simply manage the labor market by attracting and retaining employees. It must be part of a reward system that manages the productive processes that are the essence of innovation. Most importantly, the compensation system must motivate employees to engage in collective learning and to ensure a high level of utilization of the resultant productive capabilities.

The social condition that enables finance to support the innovation process is *financial commitment*: a set of relations that ensures the allocation of funds to sustain the cumulative innovation process until it can generate financial returns. What is often called “patient”

capital enables the capabilities that derive from organizational learning to cumulate over time, notwithstanding the inherent uncertainty that the innovation process entails. Strategic control over internal revenues is the foundation of financial commitment. The size and duration of investments in innovation that are required may demand that such “inside capital” be supplemented by external sources of finance such as stock issues, bond issues, or bank debt. In different times and places, depending on varying institutional arrangements, different types of external finance may be more or less committed to sustaining the innovation process (Lazonick 2007d).

Control over internal funds, leveraged if need be by external funds, enables corporate executives to commit to innovative investment strategies of large size and long duration. Given the uncertain character of the innovation process, the full extent of financial commitment required to generate higher quality, lower cost products is not known at the outset of an investment strategy, but only unfolds over time. There will be cases in which corporate executives squander corporate resources on ill-conceived investment strategies, as agency theorists contend. Given the cumulative character of the innovation process, however, an investment strategy that at any point in time entails costs without generating returns may turn out to be successful at a later point in time. The corporate governance challenge is to evaluate the often-escalating demands of corporate executives for financial commitment so that innovation is not nipped in the bud, while ensuring that good money is not thrown after bad.

Of central importance to the accumulation and transformation of capabilities in knowledge-intensive industries is the *skill base* in which the firm invests in pursuing its innovative strategy. Within the firm, different functional specialties and hierarchical responsibilities characterize the division of labor, and define the firm’s skill base. In the effort to generate collective and cumulative learning, those who exercise strategic control can choose how to structure the skill base, including how employees move around and up the enterprise’s functional and hierarchical division of labor over the course of their careers. At the same time, however, the organization of the skill base will be constrained by both the particular learning requirements of the industrial activities in which the firm has chosen to compete and the alternative employment opportunities of the personnel whom the firm wants to employ.

The innovative enterprise requires that those who exercise strategic control be able to recognize the competitive strengths and weaknesses of their firm’s existing skill base and, hence, the changes in that skill base that will be necessary to mount an innovative response to competitive challenges. These strategic decision-makers must also be able to mobilize committed finance to sustain investment in the skill base until it can generate higher quality, lower cost products than were previously available. To build the types of organizations that can generate innovation, corporate governance institutions must concern themselves with financial commitment and strategic control.

What, then, is the role of the stock market in the innovative enterprise? Does it support or undermine the innovation process? How does the stock market influence strategic control, organizational integration, and financial commitment? A research agenda that seeks answers to these questions must consider the ways in which a business enterprise actually makes use of the stock market.

For the business enterprise, the stock market can perform five distinct functions which I label alliteratively “creation”, “control”, “combination”, “compensation”, and “cash” (Lazonick and O’Sullivan 2004).

- *Creation*: By providing a means to transform privately owned shares in a company into tradable securities, and thus facilitating the “exit” of financiers from further participation in the new firms that they have funded, the stock market can encourage a flow of finance into venture creation. By providing the prospect of financial liquidity at a later point in time, therefore, the stock market can induce financial commitment at an earlier point in time.
- *Control*: By enabling the selling and buying of shares, the stock market can affect the concentration or fragmentation of shareholding in a corporation, and thus influence the relation between ownership of corporate assets and control over the allocation of corporate resources. The stock market can therefore influence who exercises strategic control over corporate resource allocation.
- *Combination*: By giving corporate stock the status of an exchange currency, the stock market enables a corporation to tender its own stock, rather than cash, as a form of payment in mergers and acquisitions. The stock market can therefore influence the financial conditions that enable one company to gain strategic control over the resources of another company.
- *Compensation*: By giving corporate stock the status of an exchange currency, the stock market enables a corporation to use its own stock, most typically in the form of stock options, as a form of compensation that can attract, retain, motivate, and/or reward employees. The stock market can therefore serve as a means of organizational integration.
- *Cash*: By providing liquidity to investments in a company while also limiting the liability of the owners of shares to the investments that they make, the stock market increases the sources from which a company can raise cash that can be used to fund capital expenditures, pay off debt, cover operating expenses, or augment the corporate treasury. The stock market can therefore function directly as a source of financial commitment.

The functions of the stock market have changed dramatically from the Old Economy business model that prevailed among US industrial corporations in the post-World War II decades to the New Economy business model that evolved out of the Silicon Valley microelectronics industry from the 1960s and has consolidated its position as the predominant business model over the last decade or so (see Carpenter et al. 2003; Lazonick 2006a, and 2007d; Lazonick and Tulum 2008; O’Sullivan 2004, 2007a, and 2007b). For each of the five functions of the stock market, let us look at these transformations in the dominant US business model.

5. Creation

The creation function of the stock market can support innovation by inducing investors to commit financial resources to highly uncertain new ventures with no immediate prospect of a financial return. The stock market enables equity holders to “exit” from their investments through an initial public offering (IPO). The number of venture-backed IPOs in the United States averaged 112 per year in 1987-1992, 180 in 1993-1998, 267 at the peak of the Internet boom in 1999-2000, and 55 in 2001-2007. Of these venture-backed IPOs, ICT accounted for 36 percent in 1987-1992, 50 percent in 1993-1998, 81 percent in 1999-2000, and 44 percent in 2001-2007.³

Alternatively equity holders can sell the firm in which they have invested to an established company. The number of venture-backed M&A deals in the United States averaged 27 per year in 1987-1992, 118 in 1993-1998, 289 in 1999-2000, and 357 in 2001-2007. Of these venture-backed M&A deals, ICT accounted for 49 percent in 1987-1992, 60 percent in 1993-1998, 73 percent in 1999-2000, and 78 percent in 2001-2007. While a well-developed stock market is not a necessary condition for such a deal, the presence of an active IPO market tends to raise the sale price because equity holders also have the possibility of exiting via an IPO. A stock-market listing by the established company also provides the acquirer with the option to make the purchase with its tradable (and hence liquid) stock rather than with cash.

Since the 1960s the creation function of the stock market has served as a powerful inducement for venture capitalists to back high-tech startups. Well over two-thirds of the world’s venture capital is invested in the United States. California’s Silicon Valley is the world’s leading district for venture capital with 38 percent of the value of investments and 31 percent of the number of deals in the United States over the period 2001-2007.⁴ The primacy of Silicon Valley in venture capital dates back to the 1960s and early 1970s when it became involved in a proliferation of microelectronics startups. In 1973 the founding of the National Venture Capital Association (NVCA), with its main base in Silicon Valley, signaled that venture capital had emerged as an industry in its own right (Lazonick 2006a).

Meanwhile the launching in 1971 of the National Association of Security Dealers Automated Quotation System, or NASDAQ, out of the existing over-the-counter markets meant that IPOs could be carried out on a national stock market that had minimal listing requirements (O’Sullivan 2007b). Further enhancing the liquidity of the stock market, and hence the conditions for lucrative IPOs, was the 1975 ruling by the Securities and Exchange Commission (SEC) that barred stock exchanges from charging fixed commissions on stock-trading transactions, thereby putting an end to a practice that had prevailed on Wall Street since 1796.⁵ With the end of fixed commissions, the investing public became more willing to absorb new share issues of firms without a history of profits from which dividends could be paid, thus creating the possibility for venture capitalists to exit from their venture investments more quickly than had previously been the case.

³ Venture-backed IPO and M&A data are from Thomson Financial Venture Xperts. See also Lazonick 2007c, 1001-1004.

⁴ PriceWaterhouseCoopers MoneyTree, at www.pwcmoneytree.com.

⁵ “SEC moves closer to goal of ending fixed fees by May 1,” *Wall Street Journal*, October 25, 1974, 4.

In 1978, in response to intensive lobbying led by the American Electronics Association and the NVCA (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). 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.

During the 1970s, however, venture capitalists faced constraints on the amount of money that they could raise because they had not yet tapped the vast accumulation of household savings held by pension funds. Even the small amount of pension fund money that had been placed with venture capitalists by the early 1970s vanished in 1974 when the passage of the Employment Retirement Income Security Act (ERISA) made pension fund managers personally liable for making “imprudent” investments (Niland 1976). On July 23, 1979, however, the US Department of Labor, again with urging from the high-tech lobby, declared that pension fund money could be invested in not only listed stocks and high-grade bonds but also more speculative assets, including new ventures, without transgressing the “prudent man” rule.⁶ As a result pension fund money poured into venture capital funds from the end of the 1970s (Gompers and Lerner 2002, 8).

As already mentioned, in the post-World War II decades government support was critical to the development of computer and biotechnology capabilities that could potentially be employed by high-tech startups. Meanwhile, however, the US government found itself accumulating intellectual property rights, most of which were not being commercialized. In 1980, therefore, the US Congress passed the Patent and Trademark Amendments Act, also known as Bayh-Dole, that enabled non-profit organizations and small businesses (and from 1984 large businesses as well) to retain title to, and hence gain from the commercialization of, inventions that resulted from federally funded research (Mowery et al. 2004). Bayh-Dole was of particular importance for encouraging startups in the emerging biotechnology industry, as was the Orphan Drug Act of 1983 that subsidized the research and protected the markets of biotech products that could treat rare and genetic diseases. Most of the blockbuster biotech drugs to date have received various government subsidies under the Orphan Drug Act of 1983, which also grants seven years of market exclusivity to those drugs that obtain FDA approval (Lazonick and Tulum 2008).

In biotechnology, the creation function of the stock market has induced many scientists who might otherwise have spent their careers in research labs to become entrepreneurs with the hope of becoming wealthy if and when the startup does an IPO or M&A deal. It has also encouraged established pharmaceutical companies to enter into R&D contracts with startups because the equity stakes that are typically part of those contracts may provide a handsome return on their investments long before the drug the development of which they are funding actually gets commercialized. To give an example, from its founding in 1988 to its IPO in December 2006, Affymax a venture-backed biopharma company based in Palo Alto, recorded a total of \$11.7 million in revenues, all from the first phase of an R&D partnership

⁶ “The death of equities,” *Business Week*, August 13, 1979, 54.

concluded in February 2006 with Japan-based Takeda Pharmaceutical. Affymax had a therapeutic product under development in the late stages of Phase II clinical trials, with the expectation of moving into Phase III trials in early 2007 and a stated target of gaining FDA marketing approval for the drug in 2010. At that point, Takeda would have exclusive rights to market the drug outside of the United States. To generate returns from their investments, however, Takeda as well as Affymax's venture capitalists did not have to wait for an Affymax product to come to market. As part of the R&D partnership, Takeda purchased 2.1 million Affymax shares for \$10 million in February 2006. At the IPO some ten months later, Takeda's shares were worth \$63 million.

Takeda was able to reap this return on its shareholdings because of the existence of public investors who were willing to speculate in the shares of a company like Affymax which was still years away from a commercial product. Indeed, from an IPO price of \$30.00 on December 15, Affymax's stock rose to a peak price of \$41.00 on February 12, 2007, and then began a general decline to a low (at the time of writing) of \$13.35 on April 15, 2008. The existence of stock market investors looking to make speculative gains on a stock such as Affymax is what enables the IPO and in turn attracts venture capital and big pharma money into the biopharmaceutical industry.

It has been most advantageous for new ventures to do IPOs during periods of rampant stock market speculation; the late 1920s when aviation issues were hot, the early 1960s when electronics yielded "glamour" stocks, the early 1980s when microelectronics and biotechnology issues were the rage, and the late 1990s when the Internet revolution generated the dot.com boom (Cassidy 2002; O'Sullivan 2007a). During such periods, the prospect of a quick and lucrative IPO or M&A deal has generated *too much* of an inducement to venture creation at the ultimate expense of the speculating public. The dot.com boom of the late 1990s was particularly problematic because of the extent to which US households had become active participants in the highly liquid stock markets. Subsequent investigations by the New York State Attorney General and the Securities and Exchange Commission documented the extent to which Wall Street investment banks as insiders had privileged access to the new shares issued in IPOs, and then quickly sold them to lock in gains as outsiders clamored to buy the stocks once they became traded on the stock market (see, e.g., Chaffin 2002a and 2002b; Moore 2002; Teather 2002; Vickers and France 2002).

Speculation in dot.coms and other Internet-related new ventures resulted in a redistribution of income from the investing public as outsiders, be they day traders or unknowing households, who played the role of "greater fools" to Wall Street as insiders. In addition, on the supply side, such speculation caused problems for the accumulation of innovative capabilities. At technology startups more effort was often devoted to getting to an IPO than to developing a commercializable product. Speculation could also disrupt the innovation process at established high-tech companies when key technical and administrative personnel "jumped ship" to startups as well as when top executives of established companies acquired technology startups in an attempt to convince the investing public that their companies had become "new economy", and hence were worthy of higher stock prices (see Carpenter et al 2003).

6. Control

The integration of ownership and control in a new venture provides a powerful incentive for those who have an equity stake in the firm to succeed. These equity holders include not only founder-entrepreneurs and venture capitalists (who typically play an active role in determining the strategic direction of the company) but also employees who have equity stakes either in the form of shares or stock options. The stakes of these equity holders generally become much more valuable when the firm is able to do an IPO or an M&A deal.

When a privately-held company is acquired, asset ownership is separated from managerial control, although the former owner-managers of the company that is sold may stay on with the acquirer as executives, and will often have equity stakes in the acquirer as a result of the sale. An IPO also inherently entails a degree of separation of ownership and control, with the extent of the separation depending on the dilution of the original stakes of the founder-entrepreneurs and venture capitalists both before and after going public as well as on whether they retain their positions of strategic control. It is common for owner-managers of US high-tech companies who have had their equity stakes diluted to a small minority share to stay on in positions of strategic control after an IPO. But now they cannot assume that they, or their descendants, will retain these positions by virtue of majority ownership. In most cases, after a generation, and often much sooner, strategic control passes to salaried managers who have never held substantial equity in the company.

For those companies in which there remains an integration of ownership and control, the use of a company's stock as combination and compensation currencies will generally result in substantial dilution of the stakes of founders over time. Nevertheless in younger companies, many founders who still maintain active roles in their companies owe the enormity of their wealth to the stock market. In addition, many top executives who occupy their positions of control solely as professional managers have accumulated considerable wealth by virtue of the stock-based compensation that their boards of directors have lavished on them. From their personal standpoint, these owners and managers have no reason to cast doubt on the ideology that the maximization of shareholder value benefits not only their corporations but also the economy and even the society in which they operate.

From the shareholder-value perspective, as we have already seen, the separation of ownership and control poses the fundamental agency problem. But the notion that salaried managers will as agents rather than principals have a natural propensity to misallocate corporate resources begs the question of how, given the ubiquity of the separation of ownership and control, the US corporate enterprise drove the development of the US economy during the 20th century (see Lazonick 1992). Moreover, it is incorrect to assume that the solution to the supposed agency problem is to give salaried executives an equity stake in the publicly traded corporation by, for example, granting them stock options. A volatile stock market provides these executives with ample opportunities to gain for themselves by selling their shares even when these gains are not warranted by the productive and/or competitive performance of the company.

The likelihood of such an event is all the greater if, as is generally the case in United States, the realization of gains from stock option grants does not depend on the *superior*

performance of the company's stock over a *sustained* period of time relative to the performance of the industry in which the company competes. Moreover, especially when the stock market is highly speculative as was the case in the late 1990s or when corporate profits have been high as was the case in the mid-2000s, there are ample opportunities for those who exercise strategic control to allocate corporate resources in ways that influence stock price movements for their own personal gain. Stock repurchases, which I discuss in some detail below, represent one such mode of resource allocation.

There are many ways to govern the behavior of corporate executives to ensure that they take actions that enhance the productive and competitive performance of their companies, but giving them US-style stock-based compensation is not, in my view, one of them. Indeed, as mentioned earlier, in the wake of the bursting of the Internet bubble, the excesses of the late 1990s even brought a critique of overvalued equities from Michael Jensen who throughout the 1980s and 1990s had been chief academic cheerleader for "maximizing shareholder value". Jensen had argued in particular for the need to increase the stock-based pay of top executives to align their interests with those of shareholders (Jensen and Murphy 1990). In "Just Say No to Wall Street: Putting a Stop to the Earnings Game", Fuller and Jensen (2002) exhort CEOs to resist the demands of Wall Street financial analysts for companies to report higher earnings to justify higher stock prices. They blame corporate executives for collaborating with Wall Street in the overvaluation of their companies' shares, with a resultant misallocation of resources. As one of their two examples (the other being Enron), Fuller and Jensen (2002, 44) find fault with the telecommunications equipment company Nortel Networks for spending over \$32 billion in 1997-2001 on acquisitions, purchased mainly with overvalued stock instead of cash, that subsequently had to be written off or shut down. Encouraging Nortel's top management in this behavior, Fuller and Jensen (2002, 44) recognize, was "the incentive to maintain the value of managerial and employee stock options".

7. Combination

When one company acquires another, it has to account for the value of the acquisition on its balance sheet. In the last half of the 20th century, many US companies treated acquisitions as "pooling of interests", an accounting method that enabled the acquirer to put the book value of the acquisition on its balance sheet, and thus avoid recording goodwill – the difference between market value and book value – as an intangible asset. By not having to amortize goodwill, the acquirer would show higher earnings on its profit-and-loss statement over subsequent years than if it had recorded the acquisition at its actual purchase price. The prevailing notion among corporate executives was that higher reported earnings would result in higher stock prices.

During the conglomerate boom of the 1960s, many pooling-of-interests acquisitions were made with debt or with a combination of securities and cash (Brooks 1973, 160-61; Editors of Fortune 1970). In 1970, in response to abuses of pooling-of-interests accounting during the conglomeration era, the Accounting Principles Board (replaced in 1973 by the Financial Accounting Standards Board [FASB]), ruled, among other things, that only acquisitions made entirely with common stock could use pooling of interests (Wallman et al. 1999, 26;

more generally Rayburn and Powers 1991; Seligman 1995, 419-29). The Internet boom of the last half of the 1990s raised the value of shares relative to cash, thus making stock a relatively more attractive combination currency. In the boom, pooling-of-interests accounting encouraged established companies to bid for relatively young companies, many of which were revenue-less startups, with low book values.

The use of stock instead of cash as an acquisition currency became much more prevalent in the United States in the late 1990s than it had been during the late 1980s (Rappaport and Sirower 1999; see also Tufano 1993, 290). In their Harvard Business Review article entitled “Stock or Cash?”, Alfred Rappaport and Mark Sirower (1999, 147-148) argue:

The legendary merger mania of the 1980s pales beside the M&A activity of this decade. In 1998 alone, 12,356 deals involving U.S. targets were announced for a total value of \$ 1.63 trillion. Compare that with the 4,066 deals worth \$378.9 billion announced in 1988, at the height of the 1980s merger movement. But the numbers should be no surprise. After all, acquisitions remain the quickest route companies have to new markets and to new capabilities. As markets globalize, and the pace at which technologies change continues to accelerate, more and more companies are finding mergers and acquisitions to be a compelling strategy for growth. What is striking about acquisitions in the 1990s, however, is the way they're being paid for. In 1988, nearly 60% of the value of large deals -- those over \$100 million -- was paid for entirely in cash. Less than 2% was paid for in *stock*. But just ten years later, the profile is almost reversed: 50% of the value of all large deals in 1998 was paid for entirely in *stock*, and only 17% was paid for entirely in cash.

The collapse of stock prices that occurred in late 2000 and the first half of 2001 led to widespread criticism of pooling of interests, and in July 2001 FASB banned the further use of this method of accounting for acquisitions.⁷

The use of stock to make acquisitions was particularly popular among information and communication technology (ICT) companies in the late 1990s when the speculative boom provided them with a “private” currency that appeared to be more valuable than cash. As Steven Ballmer, then president of Microsoft, put it in an interview in early 1998 (quoted in Cusumano and Yoffie 1998, 302):

We've had to step up and either make or not make big investments on Internet time. Like WebTV. Like HotMail. Some of them, I think, will prove smart. Maybe some of them won't prove smart. But they're not huge decisions. We have a currency [with our stock price] that makes them relatively small decisions. These deals [WebTV and HotMail] were both done for stock. I still think it's real money, whatever it is -- \$400 million of so per acquisition. But I can stop and say, “OK, that's half of one percent of Microsoft.” That's probably a reasonable insurance policy to pay.

⁷ FASB news release: <http://accounting.rutgers.edu/raw/fasb/>

No company made such systematic use of its stock as an acquisition currency as Cisco Systems. Founded in Silicon Valley in 1984, Cisco did its IPO in 1990, a year in which it had \$70 million in revenues and 254 employees. Over the course of the 1990s Cisco came to dominate the Internet router market, reaching revenues \$18.9 billion in fiscal 2000, with a year-end total of 34,000 employees. From 1993 through fiscal 2003, the company did 81 acquisitions for \$38.1 billion, of which 98 percent was paid in stock.

From November 2003 through September 2008, however, Cisco did another 50 acquisitions for over \$15 billion, almost entirely in cash, with stock constituting partial payment in only two of these acquisitions. Why did Cisco reverse its practice of using stock as an acquisition currency? FASB's outlawing of pooling-of-interests accounting in July 2001 meant that an all-stock acquisition could no longer serve to inflate future reported earnings. Cisco had made ample use of this accounting device when it was permitted (see Donlan 2000). Yet this explanation of Cisco's shift from stock to cash as the dominant combination currency is clearly only a partial one since the company made ten all-stock acquisitions between July 2001 and March 2003 when the new FASB ruling was in place. At best the ruling made Cisco indifferent from an accounting point of view between the use of cash and stock in acquisitions. In fact, Cisco's stock price was generally higher from November 2003 to December 2004 than it had been from July 2001 to October 2003, which, all other things equal, should have encouraged the use of stock rather than cash for acquisitions – just the opposite of what Cisco actually did.

What probably tilted Cisco toward the use of cash were the facts that it had current assets of over \$14 billion on its balance sheet throughout fiscal 2004, and, given its massive stock repurchase program, the use of stock to acquire companies would have just increased the number of shares it would then have to repurchase to reduce dilution to a desired level (see Domis 2003). It is also the case that Cisco paid much less on a per-employee basis for its cash acquisitions than it had paid for its stock-based acquisitions, reflecting perhaps a preference by the owners of the acquired firms for hard cash rather than volatile stock. With 183 employees, the cost per employee of the Latitude acquisition in November 2003 was \$470,000, the lowest of Cisco's 82 acquisitions up to that point. And, at \$860,000, the average cost per employee of Cisco's 2004 acquisitions was only 21 percent of the average cost of \$4,140,000 per employee for all its 94 acquisitions through 2004, and would be less if one were to correct for price inflation.

In late 2005 Cisco agreed to pay \$6.9 billion for Scientific-Atlanta, a Georgia-based home-entertainment company with 7,500 employees that had been founded in 1961. To complete the acquisition in early 2006, Cisco did a \$6.5 billion bond issue, the first time in its history that it had ever issued debt, and indeed the largest debt debut ever by a US company. Cisco claimed that it had its cash tied up abroad (Aubin 2006). I would conjecture, however, that Cisco did this bond issue because it wanted to preserve its cash for, as is discussed below, its massive annual stock repurchases.

Cisco became well known for its ability to integrate its acquisitions into its organization and for a relatively low level of employee turnover (O'Reilly and Pfeffer 2000; Mayer and Kenney 2004). During the 1990s, however, not all ICT companies used their stock as an

acquisition currency as effectively as Cisco Systems. As shown in detail elsewhere (see Carpenter et al. 2003; Lazonick and March 2008), at the height of the Internet boom, in an effort to emulate the Cisco strategy, Lucent Technologies and Nortel Networks, used billions of dollars worth of overvalued stock to acquire technology companies that brought little in real value to the acquirer. In 1998-2000 Nortel paid \$29.2 billion, 98 percent in the form of stock, for 17 acquisitions, nine of which had fewer than 200 employees; while Lucent paid \$41.1 billion, 95 percent in the form of stock, for 32 acquisitions, 19 of which had fewer than 200 employees. Many of the key people in the acquisitions quit to spend their newly acquired wealth or to do new startups. Most of the startups that were acquired in 2000, at the height of the boom, moreover, had only the promise of a commercial technology, and were subsequently written off. Nevertheless, in the fervor of the Internet boom, these acquisitions were hailed as the future of ICT, and in the short run helped to boost the acquirer's stock price. At both Lucent and Nortel, the CEOs who approved these acquisitions made enormous gains from stock-based compensation and bonuses before being ousted as it became evident in the downturn that their "New Economy" behavior had brought their Old Economy companies to the brink of bankruptcy.

8. Compensation

From the 1950s executive stock options became a widespread mode of compensation in US industrial corporations. Given marginal income tax rates of 91 percent on the highest brackets of personal incomes in the post-World War II era, the Revenue Act of 1950 gave corporate executives the right to pay the capital gains tax rate of 25 percent on income from stock options. The gains that top executives reaped from a rising stock market spawned a political backlash in the 1960s that threatened to bring this privileged form of executive compensation to an end (see Industrial Union Department 1959; Griswold 1960).

From that time, however, a very different type of firm began to make use of stock options for a very different purpose. From the 1960s high-tech startups began to use stock options to lure *non-executive* professional, technical, and administrative employees away from secure employment at established companies. The practice became particularly widespread in Silicon Valley where by the 1980s it was common for new technology companies to award stock options to virtually all employees, executive and non-executive. As they grew, these companies maintained the compensation practice of broad-based stock option plans, even as, in some cases, their employees came to number in the tens of thousands. Many New Economy companies located outside Silicon Valley – for example, Microsoft based in the State of Washington and Dell based in Texas – followed suit.

Microsoft started giving its 200 employees stock options in 1982, and four years later, with about 1000 employees and \$200 million in revenues, went public to give liquidity to the stocks that employees purchased when they exercised their vested options (see Lazonick 2003a). As the company grew to employ over 20,000 people in 1996 and almost 40,000 four years later, virtually all Microsoft employees got options. In May 2001, with stock prices tumbling, Microsoft doubled the option grants of all employees. Just over two years later, however, with 55,000 employees, the company announced that it would no longer award

stock options. Since then, as Table 2 shows, Microsoft's "overhang" – its stock options as a proportion of outstanding shares -- has been on the decline.

Table 2. Stock options outstanding as a percent of common stock outstanding, selected US ICT companies, 2000-2007
percent

	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>
AMD	13.64	14.18	16.40	14.41	12.02	10.36	8.43	7.53
Cisco Systems	12.68	13.94	15.51	18.04	19.95	22.20	23.74	22.45
Dell	13.20	12.72	13.37	14.35	15.11	15.19	14.24	14.15
Hewlett-Packard	7.16	9.81	11.12	15.76	18.03	19.05	17.95	15.79
Intel	9.29	10.51	12.27	13.07	13.92	15.16	15.08	13.00
IBM	8.80	9.82	11.64	13.76	15.02	15.49	14.74	12.92
Lucent Technologies	11.00	16.71	13.90	8.10	9.00	9.21	7.90	na
Microsoft	15.12	16.07	19.86	14.64	11.47	8.46	8.09	6.79
Motorola	6.07	8.25	10.88	12.66	13.11	12.07	10.48	10.15
Oracle	9.55	9.24	8.25	8.69	8.65	8.83	8.99	8.55
Sun Microsystems	13.68	14.73	16.33	17.66	17.79	17.01	15.39	13.27
Texas Instruments	8.14	8.92	10.25	12.09	13.66	14.32	15.49	15.26

* On December 1, 2006, Lucent ceased to exist when it was merged into the France-based company Alcatel to form Alcatel-Lucent

Fiscal years ending: January: Dell; May: Oracle; June: Microsoft, Sun Microsystems;
July: Cisco Systems; September: Lucent Technologies; October: Hewlett-Packard;
December: AMD, IBM, Intel, Motorola, Texas Instruments

Source: Company 10-K filings.

Cisco, however, with 61,535 employees at the end of fiscal 2007, still gave almost everyone options. Its overhang soared to almost 24 percent in 2006, but then, notwithstanding large-scale stock repurchases, declined in 2007, and then again in 2008 (to 20.16 percent), as the result of the amount of options exercised. Like Cisco, Dell, Oracle, and Sun have historically given options to all employees. Intel gave options to only about one-half its labor force until 1997. As the Internet boom heated up, and as the word spread among Intel's almost 50,000 employees that in 1996 CEO Andrew Grove had raked in some \$98 million from exercising stock options, the company expanded the program to include almost all of its employees.

Hewlett-Packard, an Old Economy company located in the heart of Silicon Valley, awarded stock options only to upper-level employees in the early 1980s, but then gradually extended stock options to a larger proportion of the labor force from the mid-1980s to 1998. In 1985 the proportion of HP employees holding options was only eight percent, but it increased to 18 percent in 1990, 25 percent in 1995 and 30 percent in 1998. At the height of the Internet boom, this proportion jumped sharply, first to 57 percent in 1999 and then 98 percent in 2000. At the end of fiscal 2007 the proportion of HP employees holding options had declined to 58 percent, or 99,000 employees, but since 2000 all regular HP employees have been eligible to receive options.

At the beginning of the 1990s, IBM, like most Old Economy companies, reserved stock options for top-level executives, but in making the transition to the "New Economy business model" (see Lazonick 2006a), the company increasingly and substantially broadened the base

of recipients. As can be seen in Table 2, the overhangs of HP, IBM, Intel, and Texas Instruments were steadily on the rise in the first half of the 2000s, in large part because, as we shall see, these companies have spent billions of dollars annually buying back shares, and hence reducing the number of shares outstanding.

Who gains from stock options? And how much? In their proxy statements, companies provide data on the gains from the exercise of stock options of the CEO and four other highest paid executives (labeled hereafter the “top5”). Table 3 shows the average annual income per top5 executive from the exercise of stock options for 1995-2007 at the same 12 ICT companies that are listed in Table 2.

Table 3. Average gains per top5 executive from the exercise of stock options, selected US ICT companies, 1995-2007

Thousands of US dollars

	AMD	CSCO	DELL	HPQ	INTC	IBM	LU	MSFT	MOT	ORCL	JAVA	TXN
1995	546	4,065	387	534	4,892	152		2,505	3,190	4,301	727	4,066
1996	2,011	15,790	820	1,074	24,585	5,383	na	0	1,038	8,302	2,786	0
1997	4,549	3,124	1,977	2,161	12,516	3,764	248	4,127	180	3,620	4,425	1,265
1998	190	5,972	14,417	1,114	40,137	10,239	15,597	3,271	0	3,752	11,515	1,492
1999	139	60,586	36,937	8,732	4,796	24,457	165	30,178	2,297	6,754	5,619	5,037
2000	20,080	51,302	98,791	4,360	32,063	13,293	6,100	50,653	607	83,504	25,180	15,048
2001	3,517	11,884	75,151	0	4,117	29,296	0	31,531	546	169,674	18,441	992
2002	15.7	805	28,612	127	3,514	943	0.5	1,405	113.76	0	5,406	0
2003	81	1,291	2,103	502	6,298	2,139	0	6,870	0	13,001	1,323	9,178
2004	115	14,207	14,019	182	6,338	2,876	0	8,564	808	8,633	1,432	493
2005	1,649	15,804	9,364	2,319	4,208	3,550	183	5	2,913	21,953	2,397	2,220
2006	4,746	17,614	31,466	4,903	2,929	3,210	na	0	8,178	12,998	564	7,286
2007	1	22,517	6,692	8,837	4,339	2,454		0	554	46,865	666	1,302

AMD=Advanced Micro Devices; CSCO=Cisco Systems; DELL=Dell; HPQ=Hewlett-Packard; INTC=Intel; IBM=International Business Machines; LU=Lucent Technologies; MSFT=Microsoft; MOT=Motorola; ORCL=Oracle; JAVA=Sun Microsystems; TXN=Texas Instruments

Source: Company proxy statements

In general, the gains from exercising stock options peaked in fiscal 2000 or 2001, although Intel’s top5 experienced their peak in 1998. At Oracle the top5 averaged almost \$170 million from exercising stock options in 2001, although they reaped no gains in 2002, which was not a good year, relatively, for stock option gains at all the companies (in the case of Dell its fiscal year ends on January 31, and hence its 2002 average gains figure of \$28.6 million refers primarily to options exercised in calendar 2001). Even before Microsoft ceased to award stock options, neither William Gates, its current chairman, nor Steven Ballmer, its current CEO, derived any earnings from the exercise of stock options (their stakes in Microsoft placed them in 2007, however, at numbers 1 and 31 respectively among the richest people in the world⁸). Unlike most of the other companies, whose top5 did very well from exercising options, Microsoft’s highest paid executives averaged a paltry \$5,180 in 2005 and zero in 2006 and 2007, in sharp contrast to the \$22.0 million in 2005, \$13.0 million in 2006, and \$47 million in 2007 that the top5 received on average at Oracle, one of Microsoft’s most important software rivals.

⁸ http://www.forbes.com/lists/2007/10/07billionaires_The-Worlds-Billionaires_Rank.html

In addition to the information on top5 compensation, the notes to company 10-K financial statements provide data that permit an estimate of the average gains per employee from the exercise of stock options, and hence also the ratio of the average gains of the top5 to those of the average employee.⁹ Table 4 shows the average gains per employee (excluding the top5) from exercising options for the same 12 companies listed in Table 3. Note the very significant gains that could be made *on average* by employees at these companies at the peak of the Internet boom, especially at Cisco, Dell, Intel, Microsoft, and Oracle, and Sun, companies that coming into the second half of the 1990s awarded options to virtually all of their employees.

Table 4. Average gains per employee (excluding the “top5”) from the exercise of stock options, selected ICT companies, 1995-2007

US dollars

	AMD	CSCO	DELL	HPQ	INTC	IBM	LU	MSFT	MOT	ORCL	JAVA	TXN
1995	1,086	60,894	3,833	2,362	18,746	671		51,829	na	na	2,468	2,136
1996	1,490	93,399	7,194	2,213	16,010	1,823	na	79,022	471	7,367	7,992	892
1997	5,075	85,159	11,219	3,156	25,295	3,615	1,019	154,196	1,058	6,588	7,626	2,932
1998	1,435	92,947	40,547	2,676	75,890	4,066	5,449	238,377	361	5,019	10,799	4,473
1999	1,687	193,476	126,639	6,613	56,589	5,790	7,505	369,693	4,055	5,650	27,477	47,880
2000	20,113	290,870	84,818	17,987	112,018	4,200	23,281	449,142	3,218	37,214	60,431	22,881
2001	2,115	105,865	76,122	1,498	18,235	4,011	828	143,772	415	88,723	46,763	6,767
2002	537	13596	33167	838	10413	1195	955	95310	334	6950	4550	4,650
2003	1,163	8,917	10,739	936	10,406	1,553	11	80,283	42	6,193	1,182	4,803
2004	5,103	32,804	12,216	638	8,405	1,842	486	50,690	1,381	7,908	1,960	6,144
2005	12,786	24,432	11,297	1,739	8,347	1,256	615	14,500	8,688	6,926	1,187	12,512
2006	18,197	25,487	8,724	6,809	3,396	1,857	558	6,208	3,852	9,514	1,249	11,142
2007	1,149	73,004	221	9,982	6,915	3,524		14,991	4,395	14,927	2,740	19,209

na=not available

Source: Company 10-K filings.

At the apex of the Internet boom, the CEO and four other highest paid executives at Cisco Systems reaped an average of \$60.6 million in 1999 and \$51.3 million in 2000 from the exercise of stock options, while some 21,000 other employees averaged \$193,000 in 1999 and some 34,000 employees averaged \$291,000 in 2000. For the decade 1996-2005 the total average gains of Cisco’s top5 were \$180.8 million and the total average gains for a hypothetical non-top5 employee who was with the company over this decade was \$941,000. Microsoft’s average gains from stock options per employee were even more dramatic; an average of \$449,000 per non-top5 employee in 2000 (when Microsoft had 39,100 employees)

⁹ Since the mid-1990s, companies have reported not only the number of options exercised in any given year but also the weighted average exercise price (WAEP) of the options exercised. To generate these estimates of employee gains from the exercise of stock options, I assume that employees exercise options evenly over the course of the year in all months in which the highest market price of the stock is greater than the WAEP for the year. I then use the difference between the mean market price and WAEP during each such month to derive the gains over the course of the year shown in Table 4. For Table 5, I use the highest monthly market price rather than the mean market price to calculate the average gains per employee to avoid biasing the calculations of relative gains from exercising options in favor of high top5/employee ratios. I am grateful to Yue Zhang for her assistance in developing these estimates.

and a total of \$1.675 million for the hypothetical non-top5 employee who was with the company from 1996 through 2005.

The gains that have been reaped more recently pale in comparison to those achieved during the boom. Such is even the case at Cisco where the average employee gains in 2004-2007 were substantially above their 2002-2003 levels but well below those that were being achieved on the eve of the boom in 1995-1996 when the size of the company's labor force was less than 20 percent of its level a decade later. The cessation of new option grants at Microsoft from 2003 accounts for the sharp decline in average employee gains at that company in 2005-2007. At Intel, which as already mentioned only began awarding stock options to all employees in 1997, the average gains per employee shot up at the height of the boom, although in 2000 the average Intel gains were only 25 percent of those at Microsoft.

At IBM the average gains from the exercise of stock options for 1996-2005 were \$95.9 million for the top5 and \$29,000 for the hypothetical average employee. In the mid-1990s IBM was at the beginning of a transition from the Old Economy practice of awarding stock options only to upper level executives to the New Economy practice of distributing options to a broader base of non-executive employees. The relatively low average gains per employee at IBM throughout the period 1995-2007 reflect the facts that a) this broader base remained much more partial than for the other companies; b) with 386,558 employees at the end of 2007, IBM's headcount was more than three times that of Intel, the next largest employer among the twelve companies in Tables 2, 3 and 4; and c) the movement of IBM's stock price was much more damped than those of the other six companies during the Internet boom.

At the height of the Internet boom, as we have seen, HP also substantially broadened the base of those who received stock options. The spike in average gains per employee to almost \$18,000 reflects the spike in HP's stock price in 2000 as well as substantial increases in the number of stock options granted per option holder in the late 1990s, even as the number of option holders grew. The numbers of option holders and average option awards per option holder at HP were, respectively, 33,000 and 242 in 1997, 37,000 and 576 in 1998, and 48,000 and 785 in 1999.

Table 5 shows the ratios of the average top5 gains from the exercise of stock options to the average gains of other employees at each of the 12 companies in Tables 2, 3 and 4, using the highest monthly stock prices to estimate their gains (see note 9). As can be seen, the top5/average employee ratios have varied markedly from year to year, but in 2005 shot up to extraordinarily high levels at Cisco, Oracle, and Sun. For fiscal 2006 (year ending January 31) the ratio for Dell was 3,153:1 as average options gains per employee fell to \$8,724, the lowest level since 1996. Meanwhile, the average top5 gains from exercising options stood at \$31.5 million. In fiscal 2007 the Dell ratio soared to 10,475, as the top5 averaged \$6.7 million in gains from stock options while all the other Dell employees – well over 85,000 of them – received an average of \$221.

Table 5. Ratios of average top5 gains from the exercise of stock options to average gains of other employees, selected ICT companies, 1995-2007

	AMD	CSCO	DELL	HPQ	INTC	IBM	LU	MSFT	MOT	ORCL	JAVA	TXN
1995	231	60	83	202	232	200		45		na	221	14
1996	705	150	93	426	1,388	2,462	na	0	2,202	989	288	0
1997	482	33	149	623	440	909	212	25	170	487	506	4
1998	77	58	307	334	477	2,234	6,587	13	0	643	929	4
1999	48	202	252	1,186	75	3,755	19	74	566	949	175	1
2000	419	156	1,000	214	246	2,758	224	101	189	1,807	364	8
2001	651	94	835	0	194	6,442	0	192	1,316	1,575	324	2
2002	15	48	745	123	290	682	0	13	341	0	951	0
2003	43	119	175	452	531	1,268	0	77	0	1,728	834	22
2004	12	386	1,031	221	566	1,459	0	156	487	1,266	571	1
2005	72	585	745	1,077	454	2,557	298	0	335	2,709	1,527	2
2006	142	621	3,153	616	737	1,581	na	0	2,123	1,227	345	9
2007	1	227	10,475	504	366	439		0	78	2,245	157	1

na=not available

Source: Company proxy statements and 10-K filings.

The widespread distribution of the gains from stock options within a company serves to legitimize the enormous sums that top executives derive from this mode of employee compensation. The data that I have presented suggest that, despite the sluggish stock market of the first half of the 2000s, the ability of these top executives to reap these rewards remained intact. It would appear that the same cannot be said for the average New Economy employee. In the 1980s and 1990s these non-executive employees in effect traded employment security in the Old Economy corporation for stock-based remuneration in the New Economy corporation. In the 2000s they have faced the insecurity of the New Economy business model, exacerbated by the globalization of the ICT labor force (see Lazonick 2006b), but with the gains from stock options – in historical perspective, their rewards for eschewing employment security – much harder to come by.

9. Cash

If there is a conventional wisdom about the functions of the stock market in the corporate economy, it is that firms issue stock to raise cash for investment in productive resources. This view of the main function of the stock market serves to support the ideology that public shareholders are risk bearers who finance economic growth without a guaranteed contractual return, and hence have “residual claimant” status. Over the course of the 20th century, however, the stock market was only a relatively minor source of cash for companies. Moreover, even when, as in the boom of the late 1920s, established companies sold large amounts of overpriced stock, they typically did so to take advantage of the speculative market to restructure their balance sheets rather than to make new investments (see O’Sullivan 2004). As a result of this financial restructuring, these companies were better positioned to withstand the subsequent stock market crash and downturn in economic activity.

In contrast, in the Internet boom of the late 1990s it tended to be new ventures that took advantage of the speculative stock market to raise huge sums through initial and secondary

public offerings that could then be used to fund investment in productive resources. A dramatic example is Sycamore Networks, an optical networking company founded in February 1998 in Massachusetts' Route 128 by two men who had already built up and sold a highly successful data equipment company, Cascade. With one customer (whose top executives were given "friends-and-family" stock options in Sycamore), previous year revenues of \$11 million, losses of \$19 million, and 155 employees, Sycamore did its IPO in October 1999, raising \$284 million for less than ten percent of its outstanding shares (Bulkeley 1999; Warner 2000; Carpenter et al 2003). In December 1999 Sycamore ranked 117th in market capitalization in the United States, just behind Emerson Electric, a company founded in 1890 that had revenues of \$14.3 billion and 117,000 employees! Sycamore then did a secondary offering in March 2000, at the very apex of the boom, with its stock at \$150, and netted another \$1.2 billion for the corporate treasury. At the same time, top executives and board members of Sycamore sold a portion of their own stockholdings for \$726 million (Gimein et al. 2002).

In effect, those who speculated in Sycamore's stock permitted the company's top executives and venture capitalists to gain huge returns from the company before what remained a startup had gotten off the ground. The company did show a profit of \$20.4 million in 2000, but from 2001 through 2008 (fiscal year ending July 31) rung up losses of \$829 million. On September 27, 2001 Sycamore's stock price fell to \$3.29, down from \$107 a year earlier, and a year later it had fallen further to \$2.36. Since then the stock price has fluctuated between \$2.30 (October 9, 2002) and \$6.29 (January 16, 2004), and on October 3, 2008 stood at \$2.91. Nevertheless, the extent of its fund-raising at the peak of the speculative boom plus some astute financial investments meant that as of July 31, 2008 Sycamore was still sitting on \$821 million in cash and short-term investments, down from \$908 million a year earlier.¹⁰

Less speculative and more productive among New Economy ICT companies in the 1980s and 1990s, was Nextel's 1999 stock offering of \$2.4 billion as part of an externally financed "war chest" to fund its expansion in mobile phones (Knight 1999). Founded in 1987 as Fleet Call, a radio dispatch company, in 1999 Nextel Communications had revenues of \$3.3 billion and 15,000 employees, but had sustained losses of \$4.6 billion over the last three years. Indeed the company was in the red in every year from 1990 through 2001 for a total loss of over \$9.2 billion. Nextel, however, steadily increased its revenues, and in 2002 showed a \$1.9 billion profit. By 2004 Nextel was number 157 on the Fortune 500 list, with revenues of \$13.4 billion, net income of \$3.0 billion, and 19,000 employees. In 2005 Nextel merged with Sprint in a \$35 billion deal.

Some New Economy startups of the 1980s and 1990s that experienced rapid growth in the 1990s had little if any resort to the stock market as a source of funds. For example, the only public stock issue that Cisco Systems has ever done was for \$48 million when it went public in 1990. In that year the company had \$70 million in revenues, net cash from operating activities of \$10 million and capital expenditures of \$4 million. Subsequently, until its 2005 bond issue of \$6.5 billion to acquire Scientific-Atlanta (see above), Cisco relied entirely on

¹⁰ "Sycamore Networks, Inc. reports fourth quarter and fiscal year 2008 financial results," September 5, 2008 available at http://media.corporate-ir.net/media_files/irol/94/94677/sycamore2008q4.pdf. In 2005 Sycamore showed a gain from the sale of investments of \$467 million, increasing its cash and near-cash on hand from \$45 million at the end of fiscal 2004 to \$508 million at the end of fiscal 2005 (Sycamore 2005 10-K, 24-25).

internally generated funds to finance its growth. From 1991 through 2007 Cisco received payments totaling \$15.2 billion for its shares, but these were sales to employees exercising their stock options and doing employee stock purchases, not public stock market issues.

Indeed in the 2000s Cisco has become a supplier of funds to the stock market rather vice versa. Cisco did its first stock purchases in 1995-1997 for a total of \$508 million. Then, as speculators boosted Cisco's stock price by 9.4 times from \$8.51 on December 12, 1997 to \$80.06 on March 27, 2000 – at which point the 16-year-old enterprise had the highest market capitalization of any company in the world – there was no reason for Cisco to do buybacks.¹¹ Over the next 30 months, however, Cisco's stock price plummeted so that on October 8, 2002, at \$8.60, it was just one percent higher than on December 12, 1997. In an effort to support its stock price, Cisco repurchased \$1.9 billion in 2002, \$6.0 billion in 2003, \$9.1 billion in 2004, \$10.2 billion in 2005, \$8.3 billion in 2006, \$7.7 billion in 2007, and \$10.4 billion in 2008, for a total of \$53.6 billion over the seven years. A highly profitable company during these years, Cisco's stock price rose to a high of \$34.08 on November 6, 2007, but, with the rest of the stock market, fell as low as to \$21.04 on July 15, 2008.

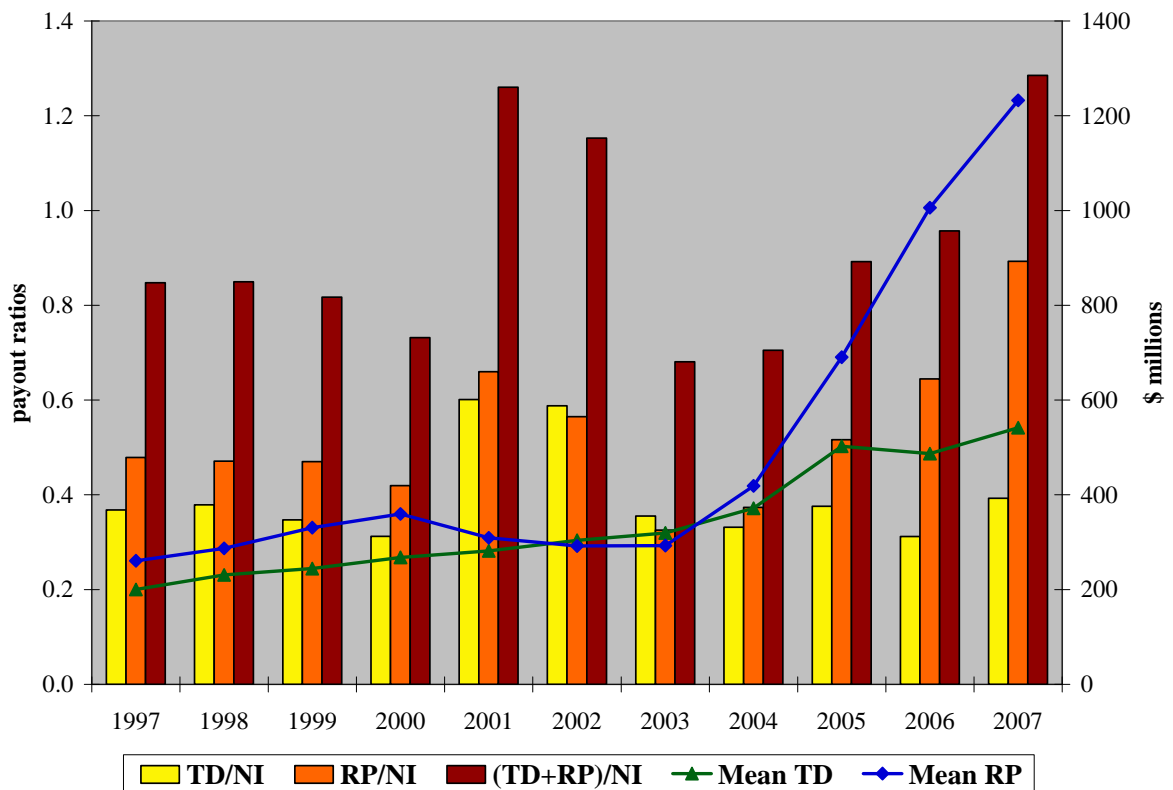
Over the period 2002-2008 Cisco expended \$27.0 billion on R&D, but almost double that amount on repurchases. Over these seven years buybacks were 144 percent of Cisco's net after-tax income. While Cisco remains an innovative, and highly profitable company, one might hypothesize that Cisco's stock price was primarily driven by innovation from 1990 through 1997, by speculation and its collapse from 1998 through 2002, and by redistribution in the form of buybacks from 2003 through 2008.

In the 2000s Cisco's financial behavior was typical of the largest US companies, including those that, like Cisco, compete in high-tech industries. Reflected in the net equity issues data in Figure 1 above, and as shown explicitly in Figure 2 below, the overall trend of the "cash" function in major US business corporations is to give money to the stock market, not get money from it. For the 292 companies in the S&P 500 Index in January 2008 for which continuous data are available going back to 1980, repurchases as a proportion of net income reached a local peak in 1987 when many companies sought to support their stock prices after the market crash in October of that year. Repurchases by these 292 companies rose sharply from 1995, and surpassed dividends for the first time in 1997 (see also Dittmar and Dittmar 2004). In 2007 the 500 companies in the S&P 500 Index in January 2008 expended *on average* \$514 million on cash dividends and \$1,194 million on stock repurchases. In recent years stock repurchases have played the leading role as a redistributive mode of resource allocation that supports stock prices.

¹¹ In any case, given Cisco's pace of acquisitions in 1998-2000 and the extent to which it used the "pooling-of-interests" method to account for their cost, Cisco was prevented from doing buybacks because of a SEC rule that prohibited stock repurchases within six months of a "pooling-of-interests" acquisition (McCarthy 1999, 94). FASB outlawed "pooling-of-interests" accounting in July 2001, and the Cisco board authorized a \$3 billion stock repurchase on September 13, 2001 (Nguyen 2001). The press viewed the Cisco buyback plan as a patriotic move to prevent a collapse of stock prices when the stock market reopened on September 17 after being closed for four sessions in the wake of the 9/11 terrorist attacks (see, e.g., Rapoport 2001). Indeed the SEC relaxed the rules on the timing of buybacks during a stock-trading session in order to encourage companies to repurchase their shares when the stock market reopened (Gordon 2001). Following Cisco's lead, many companies responded by announcing buyback programs (see "Table – Company share buybacks announced since US attacks," Reuters News, September 18, 2001).

Figure 2 shows the payout ratios and mean payout levels for 1997-2007 for 459 companies in the S&P 500 Index in January 2008 for which there are continuous data going back to 1997.¹² Figure 2 includes such New Economy companies as Microsoft, Oracle, Cisco, and Dell that were either not publicly listed or not in existence in 1980, but which have been big repurchasers of their own stock. Many New Economy companies (for example, Cisco, Dell, and Oracle) pay no dividends.

Figure 2: Ratios of cash dividends and stock repurchases to net income, and mean dividend payments and stock repurchases among the S&P 500, 1997-2007
(459 corporations in S&P 500 Index in Jan. 2008 with continuous data from 1997)



RP=repurchases, TD=total dividends (common and preferred), NI=net income (after tax with inventory evaluation and capital consumption adjustments)
Source: Compustat database, 1997-2006; company 10-K filings, 2007.

Over the 11-year period, these 459 companies distributed a total of \$1.7 trillion in cash dividends – an average of \$3.8 billion per company – and \$2.5 trillion on repurchases – an average of \$5.5 billion per company. In 2007, as shown in Figure 2, these companies

¹² For each company, we treat the fiscal year as the calendar year in which its fiscal year ends. For example, we regard the \$7.691 billion in stock repurchases that Wal-Mart did in its fiscal year ending on January 31, 2008 as having been made in 2008, and the \$1.718 billion that it did in the fiscal year ending on January 31, 2007 as having been made in 2007.

averaged \$543 million in dividend payments and \$1,240 million in stock repurchases. Combined, the 500 companies in the S&P 500 Index in January 2008 repurchased \$487 billion of their own stock in 2006 and \$597 billion in 2007.

What kinds of companies are the largest repurchasers? Table 6 lists the top 50 repurchasers for the period 2000-2007 among companies in the S&P 500 Index in January 2008. From 2000 through 2003 the 50 top repurchasers for the period 2000-2007 averaged \$1.7 billion to \$1.8 billion in buybacks per year; but this expenditure climbed to \$2.3 billion in 2004; \$3.7 billion in 2005, \$5.3 billion in 2006, and \$6.0 billion in 2007. As can be seen, these 50 companies are distributed across a range of industries, including 12 companies (in bold type) in information and communication technology (ICT), 10 companies (in italicized type) in financial services (including life and property insurance), and four companies each in petroleum refining and pharmaceuticals.

How does the allocation of resources to stock repurchases affect the allocation of resources to other corporate objectives, including innovative investments that could result in higher quality, lower cost products? Given their technological, market, and competitive characteristics, the different industries represented in Table 6 raise different issues for business and government policy that I can only highlight here.

Table 6. Top 50 repurchasers of stock, 2000-2007, among corporations in the S&P 500 Index in January 2008

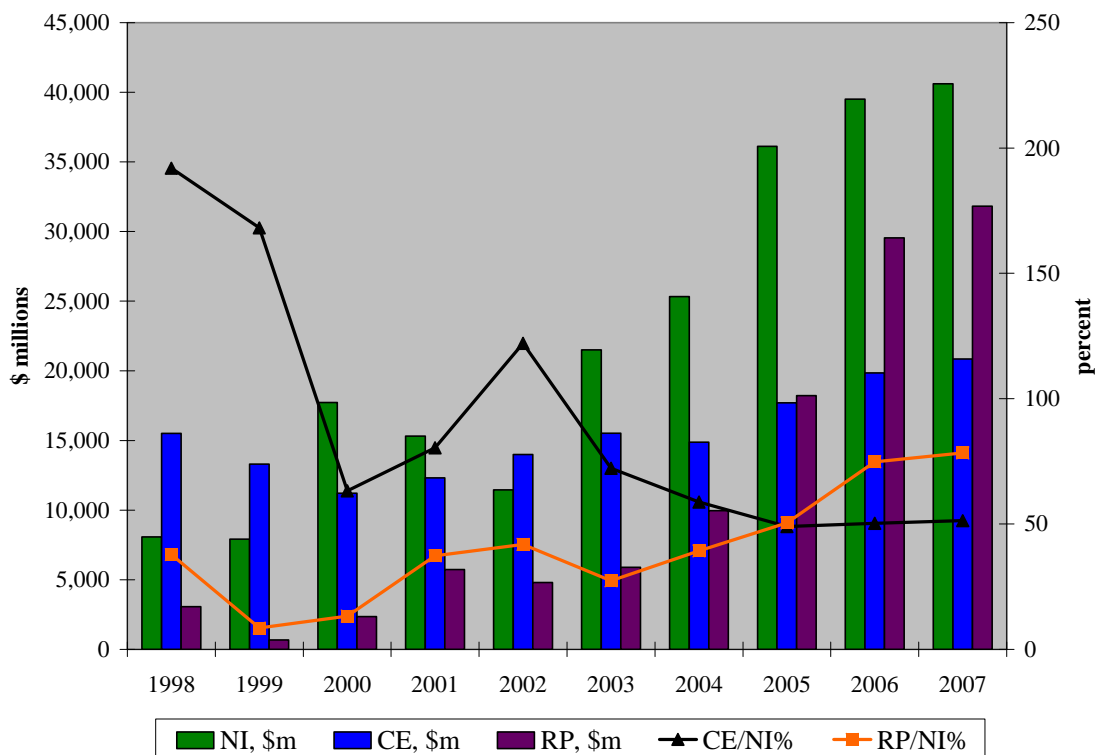
RP Rank 2000-2007	Company	Fortune industry classification, 2007	Fortune rank, 2007	RP \$m 2006	RP \$m 2007	RP \$m 2000-2007
1	EXXON MOBIL	Petroleum refining	2	29,558	31,822	108,304
2	MICROSOFT	Computer software	44	19,207	27,575	81,747
3	IBM	Information technology services	15	6,399	18,828	56,367
4	BANK OF AMERICA	Commercial banks	9	13,660	3,790	55,674
5	PFIZER	Pharmaceuticals	47	6,979	9,994	50,132
6	GENERAL ELECTRIC	Diversified financials	6	10,512	14,913	48,263
7	CISCO SYSTEMS	Network/communications equipment	71	8,295	7,681	43,129
8	INTEL	Semiconductors/electronic components	60	4,593	2,788	41,575
9	CITIGROUP	Commercial banks	8	7,125	663	37,141
10	PROCTER & GAMBLE	Household & personal products	23	16,830	5,578	36,324
11	HEWLETT-PACKARD	Computers, office equipment	14	7,779	10,887	33,721
12	GOLDMAN SACHS	Securities	201	7,817	8,956	30,186
13	JOHNSON & JOHNSON	Pharmaceuticals	35	6,722	5,607	26,694
14	DELL	Computers, office equipment	34	3,026	3,026	25,545
15	TIME WARNER	Entertainment	49	13,660	6,231	25,165
16	ORACLE	Computer software	137	2,067	3,937	23,939
17	AT&T INC	Telecommunications	10	2,678	10,390	21,628
18	JP MORGAN CHASE	Commercial banks	12	3,938	8,178	21,248
19	MERRILL LYNCH	Securities	30	9,088	5,272	21,028
20	PEPSICO	Food, consumer products	59	3,010	4,312	20,704
21	UNITEDHEALTH GROUP	Health care: insurance & managed care	25	2,345	6,599	20,678
22	AMGEN	Pharmaceuticals	173	2,000	5,100	20,361
23	WAL-MART STORES	General merchandisers	1	3,580	1,718	19,633
24	MORGAN STANLEY	Securities	21	3,376	3,753	19,050
25	CHEVRON	Petroleum refining	3	5,033	7,036	18,815
26	ALTRIA GROUP	Tobacco	61	1,254	0	18,213
27	WALT DISNEY	Entertainment	67	6,898	6,923	17,815
28	AMERICAN EXPRESS	Diversified financials	75	4,093	3,572	17,643
29	UNITED PARCEL SERVICE	Mail, package, freight delivery	46	2,460	2,639	17,374
30	LEHMAN BROTHERS	Securities	37	2,678	2,605	16,672
31	CBS	Entertainment	181	6	3,351	16,519
32	HOME DEPOT	Specialty retailers	22	3,040	6,684	16,388
33	TEXAS INSTRUMENTS	Semiconductors/electronic components	185	5,302	4,886	16,296
34	MERCK	Pharmaceuticals	101	1,002	1,430	15,984
35	3M	Miscellaneous	100	2,351	3,239	13,521
36	MCDONALD'S	Food services	106	2,959	3,943	12,878
37	BOEING	Aerospace and defense	27	1,698	2,775	12,876
38	ALLSTATE	Insurance: property & casualty	64	1,770	3,606	12,336
39	ANHEUSER-BUSCH	Beverages	149	746	2,707	11,909
40	WELLPOINT	Health care: insurance & managed care	33	5,439	6,151	11,591
41	COCA-COLA	Beverages	83	2,416	1,838	10,589
42	SYMANTEC	Computer software	461	2,846	2,846	10,086
43	KIMBERLY-CLARK	Household & personal products	136	762	2,813	10,002
44	CONOCOPHILLIPS	Petroleum refining	5	925	7,001	9,977
45	COMCAST	Telecommunications	79	2,347	3,102	9,489
46	CIGNA	Health care: insurance & managed care	141	2,765	1,185	9,434
47	CARDINAL HEALTH	Wholesalers: health care	19	1,500	3,662	9,134
48	VALERO ENERGY	Petroleum refining	16	2,020	5,788	9,036
49	UNITED TECHNOLOGIES	Aerospace and defense	39	2,068	2,001	8,742
50	APPLIED MATERIALS	Semiconductors/electronic components	270	4,158	1,332	8,741

RP=repurchases of common and preferred stock; TD=common and preferred cash dividends; NI=net after-tax income.
Source: Fortune 500 list at http://money.cnn.com/magazines/fortune/fortune500/2007/full_list/index.html
(published in *Fortune*, May 5, 2008 with data from the 2007 fiscal year of the companies)

The biggest repurchaser of stock in the 2000s has been Exxon Mobil, the petroleum refining company, with over \$108 billion in buybacks from 2000 through 2007. That these repurchases only absorbed 47 percent of the company's net income indicates how immensely profitable Exxon Mobil has been. With the price of oil rising, the company generated net income of \$36.1 billion in 2005, \$39.5 billion in 2006, and \$40.6 billion in 2007. Other major oil companies have also been major repurchasers of stock. From 2000 through 2007, Chevron, the second largest oil company in the United States, repurchased \$18.8 billion of its stock, including \$7.0 billion in 2007, while ConocoPhillips, the third largest, repurchased \$9.9 billion, including \$7.0 billion in 2007, and Valero Energy, the fourth largest, repurchased \$9.0 billion, including \$5.8 billion in 2007.

The US oil industry receives billions of tax incentives from the US government to encourage exploration for new oil (see, for example, Blum 2005). Yet, as shown in Figure 3 for the case of Exxon Mobil, in 2006 and 2007 stock repurchases far exceeded capital and exploration (CE) expenditures. In the first quarter of 2008, Exxon Mobil spent \$8.8 billion of buybacks and \$5.5 billion on CE expenditures. In the summer of 2008, such financial behavior began to grab the attention of some Democrats in the US Congress.¹³

Figure 3. Net income (NI), capital and exploration expenditures (CE), and stock repurchases (RP), Exxon Mobil, 1998-2007



Source: Exxon Mobil 10-K reports.

¹³ “Democrats Tell Big Oil: Spend More On Production and Renewable Energy, Less On Stock Buybacks Before Making Demands For New Drilling Leases,” Press Release of Senator Robert Menendez (also signed by Sen. Charles E. Schumer, Rep. Rahm Emanuel, and Rep. Ed Markey), July 31, 2008, available at <http://menendez.senate.gov/newsroom/record.cfm?id=301639>.

Among the 50 largest repurchasers of stock from 2000-2007 were seven major investment and commercial banks: Bank of America, Citigroup, Goldman Sachs, Merrill Lynch, Morgan Stanley, Lehman Brothers, and JP Morgan Chase. Bear Stearns was number 48 among repurchasers for the period 2000-2006, but in 2007 repurchased “only” \$1.7 billion, and slipped to number 54 for 2000-2007. Over 2000-2007, these eight commercial and investment banks repurchased a combined \$174.5 billion in stock, including \$27.7 billion in 2007.

Also on the top 50 list for 2000-2006, at number 47, was Fannie Mae, the company that assumes the risk for a substantial proportion of the home mortgages outstanding in the United States. On September 7, 2008, the debacle in the mortgage markets compelled the US government to take over Fannie Mae as well as its counterpart company, Freddie Mac (Crutsinger and Zibel 2008). For 2000-2007, Fannie Mae repurchased \$8.4 billion, placing it at number 53 among the S&P 500 companies, while Freddie Mac repurchased \$4.1 billion (including \$2.0 billion in 2006 and \$1.0 billion in 2007).

Combined, Bear Stearns, Citigroup, Goldman Sachs, Merrill Lynch, Morgan Stanley, Lehman Brothers, and JP Morgan Chase gave their employees \$33.2 billion in performance bonuses in 2007, down from \$33.9 billion the year before (Goldman 2008). Yet all of these companies were centrally involved in the subprime mortgage mess. Through July 2008, writedowns since the fourth quarter of 2007 stemming largely from mortgage assets were Citigroup \$57.5 billion, Merrill Lynch \$46.8 billion, Bank of America \$15.3 billion, Morgan Stanley \$11.7 billion, JP Morgan Chase \$8.7 billion, Lehman Brothers \$7.0 billion, and Bear Stearns \$3.4 billion.¹⁴ Goldman Sachs mitigated its subprime losses by selling off and hedging its subprime mortgage assets before the crash, while the diversified business portfolio of JP Morgan Chase enabled it to absorb its subprime losses better than its Wall Street competitors. Bear Stearns, Merrill Lynch, Morgan Stanley, Citigroup, and Lehman Brothers all have had to look for cash infusions to bail them out. These financings would have been much less had they retained the funds distributed to shareholders through repurchases in the 2000s.

Bear Stearns repurchased \$1.7 billion in 2007, and \$8.4 billion over 2000-2007. In October 2007 Bear worked a \$1 billion deal with Citic Group, a Chinese conglomerate, that could give the Chinese company a 6 percent ownership stake in the US investment bank (Zhu 2007). By March 2008, as the extent of its subprime mortgage losses became evident, Bear considered JP Morgan Chase’s offer to buy the whole company for \$236.2 million, with the US Federal Reserve Bank taking on the risk of selling off \$30 billion of Bear’s subprime mortgage assets. Later in March, considerable opposition by Bear’s shareholders induced JP

¹⁴ “Writedowns and losses at major global banks,” *Reuters News*, April 1, 2008; “Global writedowns and credit losses,” *Reuters News*, August 12, 2008. Among other US financial institutions, writedowns through July 2008 were AIG \$16.8 billion, Fannie Mae \$12.7 billion, Wachovia \$11.6 billion, Ambac \$10.3 billion, MBIA Inc \$9.4 billion, Washington Mutual \$8.1 billion, and Freddie Mac \$6.7 billion. See also Story 2008, who reports writedowns in the second half of 2007 and first quarter of 2008 as a percentage of earnings in 2004 through the first half of 2007 as 153 percent for Merrill Lynch, 68 percent for Lehman Brothers, 57 percent for Citigroup, 50 percent for Morgan Stanley, 15 percent of JP Morgan Chase, 15 percent for Bank of America, and 10 percent for Goldman Sachs.

Morgan to raise its bid to \$1.2 billion, and agree to take on the risk of \$1 billion of Bear's subprime mortgage assets, with the Fed assuming the risk for the other \$29 billion.¹⁵

Merrill Lynch repurchased \$5.3 billion in 2007, and \$21.0 billion over 2000-2007. In late December 2007, Merrill raised \$6.2 billion through a sale of its stock, with \$5.0 billion coming from Temasek Holdings, an investment arm of the Singapore government, for a 9.6 percent equity stake, and \$1.2 billion from Davis Selected Advisors, a US "buy and hold" investment fund (Bel Bruno 2007). In January 2008 the state-run Korea Investment Corp. invested \$3 billion in Merrill for a 3.1 percent equity stake (Ko 2008). In September 2008, Bank of America purchased Merrill Lynch for \$50 billion in stock.

Morgan Stanley repurchased \$3.7 billion in 2007 and \$19.0 billion over 2000-2007. Like Merrill, in late December 2007 it secured \$5 billion from an Asian source, in this case China Investment Corp. (CIC), the sovereign wealth fund responsible for managing China's foreign exchange reserves. In return CIC got a 9.9 percent stake (without control rights) in Morgan (Bawden 2007).¹⁶

Citigroup repurchased just \$665 million in 2007, but \$38.1 billion over 2000-2007. In November 2007, as the subprime meltdown began, Citigroup obtained a cash infusion of \$7.5 billion from the Abu Dhabi Investment Authority, with the proviso that it could not end up owning more than 4.9 percent of Citigroup.¹⁷

Lehman Brothers repurchased \$2.6 billion in 2007, and \$16.7 billion over 2000-2007. In April and June 2008, in contrast, Lehman did two \$4 billion stock issues. Meanwhile, like the other Wall Street banks, Lehman's stock price had dropped sharply from early February 2008, when the severity of the subprime mortgage crisis became widely known. On February 2, 2008, Lehman's stock price stood at \$65.55, but on September 12, 2008 closed at \$3.65. The following Monday the company entered into bankruptcy (Bel Bruno 2008; Rizzo and Bel Bruno 2008). Clearly, the \$16.7 billion in stock that Lehman had repurchased since 2000 had failed to deliver long-term shareholder value.

Until the end of 2007, it was profits that enabled the buyback activity of these Wall Street banks. At none of these banks did stock buybacks exceed net after-tax income for the period 2000-2007, and only at Bank of America and Lehman Brothers did the combination of repurchases and dividends just exceed net income. Such was not the case for many of the other top 50 repurchasers. As shown in Table 7, for 2000-2007, 11 of the top 50 distributed more cash to shareholders in the form of stock buybacks than they generated in net after-tax income, while another seven companies repurchased stock equivalent to between 90 and 99 percent of their net income. At 22 of the top 50 companies, the combined payouts for repurchases and dividends exceeded net income for 2000-2007, and at another eight companies were between 90 and 99 percent of net income.

¹⁵ "Fed clears way for Bear Stearns deal," *Associated Press Newswires*, April 1, 2008.

¹⁶ "Morgan Stanley and Merrill Lynch secure Asian support," *Euroweek*, January 4, 2008.

¹⁷ "Citi to sell \$7.5 billion of equity units to the Abu Dhabi Investment Authority," *Business Wire*, November 26, 2007.

Table 7. Payout ratios, and R&D-intensity compared with repurchases-intensity, for the period, 2000-2007, for the top 50 repurchasers of stock, 2000-2007, among corporations in the S&P 500 Index in January 2008

RP Rank 2000-2007	Company	RP/ NI%	TD/ NI%	(TD+RP)/ NI%	R&D/ SALES%	RP/ SALES%
1	EXXON MOBIL	47	29	75	0.3	5.1
2	MICROSOFT	80	63	143	15.9	29.1
3	IBM	63	15	78	5.6	7.8
4	BANK OF AMERICA	55	49	104	0.0	9.4
5	PFIZER	76	61	137	17.9	14.8
6	GENERAL ELECTRIC	29	49	79	1.7	4.2
7	CISCO SYSTEMS	151	0	151	16.2	22.8
8	INTEL	93	18	110	14.4	15.8
9	CITIGROUP	31	36	68	0.0	4.4
10	PROCTER & GAMBLE	80	44	124	3.1	8.7
11	HEWLETT-PACKARD	128	33	160	4.7	5.8
12	GOLDMAN SACHS	70	9	79	0.0	8.8
13	JOHNSON & JOHNSON	39	37	76	12.6	7.6
14	DELL	136	0	136	1.0	8.4
15	TIME WARNER	-56	-4	-60	0.4	8.4
16	ORACLE	92	0	92	12.4	28.4
17	AT&T INC	25	65	90	0.1	4.8
18	JP MORGAN CHASE	36	51	87	0.0	3.9
19	MERRILL LYNCH	56	17	74	0.0	6.0
20	PEPSICO	64	35	99	0.2	8.8
21	UNITEDHEALTH GROUP	95	1	95	0.0	4.3
22	AMGEN	126	0	126	27.6	27.7
23	WAL-MART STORES	31	20	51	0.0	1.2
24	MORGAN STANLEY	46	23	69	0.0	4.6
25	CHEVRON	17	35	52	0.2	1.5
26	ALTRIA GROUP	26	56	82	1.1	3.4
27	WALT DISNEY	92	27	118	0.0	7.6
28	AMERICAN EXPRESS	69	18	87	0.0	8.3
29	UNITED PARCEL SERVICE	64	34	99	0.0	5.8
30	LEHMAN BROTHERS	92	10	102	0.0	6.9
31	CBS	-70	-9	-78	0.0	10.3
32	HOME DEPOT	54	16	70	0.0	5.1
33	TEXAS INSTRUMENTS	108	10	119	16.3	17.7
34	MERCK	34	53	87	11.1	6.3
35	3M	58	43	101	6.3	8.8
36	MCDONALD'S	64	30	94	0.0	8.8
37	BOEING	69	33	102	4.1	2.9
38	ALLSTATE	49	27	77	0.0	5.4
39	ANHEUSER-BUSCH	69	37	106	0.0	10.3
40	WELLPOINT	99	0	99	0.0	5.0
41	COCA-COLA	30	53	83	0.0	5.9
42	SYMANTEC	413	0	413	17.1	45.2
43	KIMBERLY-CLARK	62	43	105	1.7	8.2
44	CONOCOPHILLIPS	17	19	35	0.1	1.0
45	COMCAST	112	0	112	0.0	6.4
46	CIGNA	133	13	147	0.0	6.6
47	CARDINAL HEALTH	93	6	98	0.1	1.8
48	VALERO ENERGY	51	5	56	0.0	2.2
49	UNITED TECHNOLOGIES	37	24	62	3.6	3.0
50	APPLIED MATERIALS	105	6	111	14.1	14.5

RP=repurchases of common and preferred stock; TD=common and preferred cash dividends;
NI=net after-tax income; R&D=research and development expenditure.

Did these expenditures on stock repurchases impinge on investments in the innovative capabilities of these companies? Eleven of the top 50, in bold type in Table 7, had R&D expenditures that exceeded 10 percent of sales, and hence can be classified as “high-tech”. R&D expenditures were exceeded by repurchase payouts at five of these companies, and by combined repurchase and dividend payouts at another three.

It will require detailed case study research to assess whether any particular companies eschewed the allocation of resources to R&D or other investments in innovative capabilities for the sake of more repurchases. The case of Microsoft, which distributed 143 percent of its 2000-2007 net income to shareholders, is instructive in revealing how executives at even the most dominant high-tech companies have succumbed to demands from Wall Street that they use their earnings to boost stock prices.

In June 2004, with a dividend yield of just 0.6 percent on its stock, Microsoft’s corporate treasury was bursting with \$56 billion in cash and short-term investments, and the balance sheet showed no debt. The highly profitable company, moreover, had generated almost \$16 billion in cash flow in the previous year. Given these conditions, in mid-2004 Wall Street began to exert pressure on Microsoft to increase its distributions to shareholders, and increase its stock price. A Goldman Sachs report by its software analyst suggested that, by borrowing \$30 billion, Microsoft could do a \$100 million stock repurchase (Bishop 2004). A month later, in July 2004, the Microsoft board approved a \$30 billion repurchase plan to take place over four years, a doubling of the dividend from \$0.16 per annum to \$.08 quarterly, and a special one-time dividend of \$3 per share, over 12 percent of the current share price.

The company press release that announced these distributions assured the public that “[t]his payout will not affect Microsoft’s commitment to research and development to fuel growth in the years ahead.”¹⁸ In support of this commitment, it quoted Chairman Gates: “We see incredible potential for our innovation to help businesses, individuals and governments around the world accomplish their goals, and we will continue to be one of the top innovators in our industry -- as evidenced by the fact that we will file for more than 3,000 patents this fiscal year.” The press release also quoted CEO Ballmer: “We will continue to make major investments across all our businesses and maintain our position as a leading innovator in the industry, but we can now also provide up to \$75 billion in total value to shareholders over the next four years.”

Just over a year and a half later, on April 27, 2006, Microsoft announced that it would be making major new technology investments, including a large-scale commitment of resources to its online business to confront Google and Yahoo!. The company predicted earnings per share of \$1.36 to \$1.41 for fiscal 2007, well below the expectations of Wall Street analysts of \$1.57. Rick Sherland, the same Goldman Sachs analyst who had previously encouraged Microsoft to do a \$100 million repurchase, was not pleased with the Microsoft announcement: “It’s bad to surprise the Street. It’s harmful to the stock because investors are looking for the rewards of this big product cycle next year flowing through to earnings” (quoted in Romano 2006). The next day Microsoft’s stock price fell over 11 percent, reducing the company’s market capitalization by some \$30 billion. The stock price continued to decline during most

¹⁸ <http://www.microsoft.com/presspass/press/2004/jul04/07-20boardPR.mspx>.

of May, amid criticism from Wall Street's top-rated software analysts that Microsoft was a mature firm that had attracted "value investors" who wanted returns from dividends and buybacks. An article from Bloomberg News (Bass 2006a) quoted Richard Pzena, head of an investment company that held 14.3 million Microsoft shares, as saying: "They are not managing the business with an acknowledgment the shareholders have changed. People expecting 25 percent annual growth don't own the stock anymore."

On May 31 Ballmer defended the company's "big, bold bets" on Internet technology at a conference at Sanford C. Bernstein & Company, the Wall Street investment research firm (Bass 2006b). Nevertheless, Wall Street remained critical of Microsoft's technology strategy.¹⁹ Microsoft's stock price, which had trended downward during May but had moved upward in the days before the Bernstein conference, resumed its decline, reaching a low on June 13, almost 21 percent down from its level on April 27. Finally, on July 20, Microsoft announced that it was accelerating by two years the completion of its \$30 billion buyback program. At the same time, Microsoft also announced a plan to repurchase another \$20 billion in stock from 2007 to 2011. Over the next four days, Microsoft's stock price rose by almost 7 percent.

The Microsoft example illustrates the pressure that Wall Street can exert on even the most powerful high-tech company to allocate its cash flow to "create" shareholder value. Wall Street's argument is that Microsoft is now a mature company that has lost its innovative capability, at least relative to the startups that the US economy is adept at spawning. As a mature company, the analysts argue, Microsoft should disgorge its cash flow to shareholders. As far as these "old" New Economy companies are concerned, the Wall Street consensus is that redistribution, not innovation, should be driving the stock market.

Should US high-tech companies be allocating more of their financial resources to R&D rather than stock repurchases? During the 2000s the Semiconductor Industry Association and its leading company Intel have been lobbying the US government to spend more on nanotechnology research.²⁰ Yet on its website, Intel touts the cumulative \$63.2 billion in stock repurchases that it has done since 1990.²¹ Given that companies like Intel have benefited greatly from government investments in the high-tech knowledge base in the past, why should not a portion of Intel's buyback expenditures be devoted instead to supporting the US national nanotechnology research effort?

A similar type of question can be asked of the US pharmaceutical industry. The four pharmaceutical companies in Tables 7.2 and 7.3 are among those in the industry that argue that they need to charge higher drug prices in the United States than in other parts of the world in order to fund R&D. Yet, as can be seen in Table 7.3, these companies have used substantial proportions of their earnings to do repurchases.

¹⁹ See "Microsoft to use cash for development, not share buybacks," New York Times, June 1, 2006. The full text of the Bernstein conference is available from Factiva.

²⁰ See, for example, "US could lose race for nanotech leadership, SIA panel says," Electronic News, March 16, 2005

²¹ <http://www.intc.com/stockBuyBack.cfm>

Indeed Amgen, the largest independent biopharmaceutical company, spent more on repurchases than on R&D in 2000-2007. In May 2007 Amgen did a bond issue of \$3.2 billion (\$2.0 billion due in 2008, \$1.1 billion in 2017, and \$0.9 billion in 2037) to help finance a \$4.5 billion stock repurchase, the largest annual purchase that the company had ever done (Amgen 10-Q, period ending June 30, 2007). In July 2007 the Amgen board authorized an additional \$5.0 billion stock repurchase.

But Amgen also experienced a second-quarter decline in sales of its blockbuster anemia drug Aranesp because of reports of cases in which high doses of the drug induced heart attacks (Chase 2007). On August 13, just after Amgen issued its second quarter 10-Q filing that recorded the sales decline, an analyst at Bernstein Research noted that “Amgen will likely lose at least 40 percent of their US Aranesp revenue by 2008 with even greater downside possible for both Aranesp and Epogen if upcoming [Medicare and Medicaid] reimbursement and regulatory decisions go against them.” But the analyst reportedly added: “If Amgen cuts costs, continues to buy back stock and improves its tax rate...it could increase its earnings per share by 10-12% each year from 2008 to 2011, even if it does not develop any significant drug candidates.”²² Two days later, on August 15, Amgen announced that it would downsize its workforce by 14 percent, or 2,600 jobs, cut capital expenditures by \$1.9 billion, close some of its production facilities, and reduce R&D expenses, which had been 27 percent from 2003 through 2006, to 20 percent of sales. It may well be that Amgen borrowed money to do its second-quarter repurchases because it wanted to offset the adverse impact that the Aranesp news would have on its stock price. In any case, in the allocation of corporate resources, the top priority of Amgen’s top executives appears to have been stock-price performance rather than sustainable productive performance.

In assessing the arguments of the relation between drug prices and biopharmaceutical investments in R&D, government policy makers should take seriously two salient issues that business proponents of a “free market” economy prefer to ignore. The first issue is the fact that government investment is more important than business investment for building the essential knowledge base in the biopharmaceutical industry (Lazonick and Tulum 2008). The second issue is that when US biopharmaceutical companies get high profits from high prices they do not necessarily invest those high profits in R&D.

These two issues are intertwined. Given the role of government in funding the biotech industry, the US government should take an active role in the governance of companies that make use of this support. Since the 1980s the US business community, the biopharmaceutical industry included, has embraced the ideology that the performance of their companies and the economy are best served by the “maximization of shareholder value”. It is an ideology that, among other things, says that any attempt by the government to interfere in the allocation of resources can only undermine economic performance. In practice, what shareholder ideology has meant for corporate resource allocation is that when companies reap more profits they spend a substantial proportion of them on stock repurchases in an effort to boost their stock prices.

²² “Amgen moves up after analyst says company will restructure to increase earnings,” Associated Press Financial Wire, August 13, 2007.

10. Why Do Companies Repurchase Their Own Stock?

Toward the beginning of this paper, I critiqued the ideology of “maximizing shareholder value”. Shareholders are not the only class of participants in the corporation who make investments without a contractually guaranteed return. Indeed, given the ease with which a public shareholder can create and sever her relation with any particular company by simply buying and selling shares, it can be questioned whether, and if so how, the investments that she makes contribute to the development and utilization of the company’s productive resources. To answer this question requires, I have argued, a theory of innovative enterprise on the basis of which we can analyze the productive functions that the stock market actually performs in the publicly traded corporation.

The most obvious way in which the public shareholder can contribute to the development and utilization of a company’s productive capabilities is by providing the company with cash that it can use to invest in such capabilities. Yet the evidence suggests that, in the US case at least, the stock market has been a relatively unimportant source of cash for corporate investment, except possibly in periods of rampant stock market speculation. In biotechnology, for example, at certain points since 1980, through IPOs, young companies that are still years away from developing a commercial product, and that face fundamental uncertainty about whether these products will ever emerge, have been able to raise substantial cash from the stock market for investment in drug development (Lazonick and Tulum 2008). For more mature companies, however, the stock market has become a “use” rather than a “source” of funds as stock repurchases have become a systematic and widespread feature of corporate resource allocation.

Why do companies repurchase their own stock?²³ The agency theory argument is that these distributions to shareholders represent “free cash flow” – that is, to repeat Jensen’s (1986, 323) definition: “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.” The notion that corporations should distribute the “free cash flow” to shareholders is central to the agency theory argument that the economy is run more efficiently when corporate executives seek to “maximize shareholder value”. The massive stock repurchases that have characterized the 2000s manifest the triumph of this “shareholder value” ideology.

Ideology apart, there are problems with the “free cash flow” argument for the allocation of corporate resources. Given technological, market, and competitive uncertainty, we cannot expect that even the most informed corporate decision-maker will be able to make a reasonably accurate forecast of the company’s stream of earnings over a period as short as, say, five years. Yet without such an accurate forecast, one cannot determine whether, at any point in time, the extent to which the cash flow available is in fact “free”. As the recent subprime mortgage debacle illustrates, a series of profitable years can give way to a period of losses during which the cash flow that seemed to be “free” can suddenly be sorely needed.

²³ For alternative hypotheses posed by the considerable academic literature on the topic, see Dittmar (2000), Kahle (2002), and Jun et al. (2008).

Even if one could accept a forecast of a future stream of earnings as being reasonably accurate, the determination of the “relevant cost of capital” with which to derive the present value of those earnings is a subjective measure set by those who make allocation decisions. Given that top executives, with their stock-based compensation, stand to gain from repurchases, we can expect that they will tend to set the “relevant cost of capital” high, thus biasing their decisions against making investments in productive capabilities for an uncertain future and hence designating a larger proportion of the company’s cash flow as “free”. In contrast, if corporate decision-makers were to recognize, and choose to confront, the technological, market, and competitive uncertainties inherent in the innovation process, they would understand the need to conserve the company’s cash flow to respond to such fundamental exigencies as changes in technology, fluctuations in market demand, and the rise of new competitors.

A corporate executive who rejects agency theory and accepts innovation theory might want to argue that her company does buybacks so that its stock will be attractive as a combination and compensation currency, which in turn will support the accumulation of innovative capabilities. There are, however, problems with such an argument.²⁴

When used as a combination currency to acquire other companies, there is no doubt that a company with a soaring stock price will have a competitive edge. But that soaring stock price will tend to be the result of innovation and/or speculation rather than redistribution through stock repurchases. As we have seen for the case for the case of Cisco Systems, it is likely companies that are doing large-scale stock repurchases will refrain from using stock as a combination currency. Otherwise, all other things equal, the stock repurchases would have to be even larger to offset dilution from stock-based acquisitions.

Companies often state explicitly in their financial statements that they are doing stock repurchases to offset dilution from their stock option programs.²⁵ Even from a shareholder-value perspective, the economic rationale for this argument is not clear. If a company that seeks to maximize shareholder value deems it worthwhile to partially remunerate employees with stock options, it should see that remuneration as adding to rather than subtracting from earnings per share. True, these additions to earnings per share may only accrue in years to

²⁴ For an in-depth analysis in the context of the Internet boom and bust of the late 1990s and early 2000s of the conditions under which the use of stock as a combination and compensation currency can support, or undermine, the innovation process, see Carpenter et al. 2003.

²⁵ Through fiscal 2004 Dell stated explicitly that the purpose of its share repurchase program was “to manage the dilution resulting from shares issued under Dell’s equity compensation plans” (Dell 2004 10-K, 23). In 2005 and 2006, however, the company stated that the purposes of repurchases were “both to distribute cash to shareholders and to manage dilution resulting from shares issued under Dell’s equity compensation plan” (Dell 2005 10-K, 16; Dell 2006 10-K, 18). Similarly, prior to 2001 Sun explicitly tied repurchases to stock-based compensation plans, but in 2001 introduced “a new opportunistic stock repurchase program to acquire shares in the open market at any time” (Sun Microsystems 2003 10-K, 84). Of the value of shares that Sun repurchased in 2001, 2002, and 2003, 47 percent, 25 percent, and 100 percent respectively were bought under the opportunistic plan. HP has stated that it repurchases shares “to manage the dilution created by shares issued under employee stock plans as well as to repurchase shares opportunistically” (HP 2005 10-K, 30). In fact, for most of the ICT companies in Table 2, the number of shares repurchased was well in excess of the number of stock options exercised over the period 2000-2007; at IBM this ratio was 4.32, Texas Instruments 3.26, HP 2.80, Intel 2.78, Oracle 2.59, Cisco Systems 2.14, Dell 1.89, Motorola 1.67, Microsoft 1.36, Sun Microsystems 1.34, AMD 0.10, and Lucent Technologies (for 2000-2006) 0.00.

come; but then, from the shareholder-value perspective, the issue is simply one of whether remuneration in the form of stock options (or any other mode of compensation) is expected to yield positive net present value of future earnings at the appropriate discount rate.

From the perspective of innovation theory, employees are supposed to reap the rewards from stock options in future years when the company's stock price has risen as the innovative investments of the company generate profits. Given the prospects of a rising stock price, innovative companies can make use of employee stock options as a form of remuneration to attract, retain, motivate and/or recognize employees.²⁶ Systematic stock repurchases, such as those that Intel advertises on its website, may aid this remuneration strategy by convincing employees that the company is committed to keeping its stock price high and on the rise. Alternatively, however, employees who understand the investment requirements of innovative enterprise may take the view that in allocating resources to stock repurchases, the company has foregone critical investments in innovation required to make it competitive in the future. If so, they may see systematic repurchases as a sign that it is time to cash in their vested options and leave the company. Objectively, the critical question (for both academic researchers and long-term corporate employees) is whether a company can use its cash flow to do repurchases and boost stock prices today without undermining the financial commitment that, particularly in highly competitive global industries, is required to fund innovation for tomorrow.

Top executives often simply argue that in doing stock repurchases, they, as corporate decision-makers, are "signaling" confidence that their company's stock price will rise over the long-term (see Vermaelen 2005, ch. 6; Louis and White 2007). Yet, from a financial point of view, such an investment would only make sense if one could expect that at some point in the future when innovation and speculation have resulted in an overvalued stock, the corporation would turn from being a purchaser to a seller of its own stock. Otherwise, corporate executives are taking the position that their stock can never be over-valued, even in a highly speculative boom. According to the "signaling" argument, we should have seen massive sales of corporate stock in the speculative boom of the late 1990s, as was the case of US industrial corporations in the speculative boom of the late 1920s. 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, and in some cases even hundreds of millions, of dollars). Yet if anything these same corporate executives as *corporate decision-makers* used corporate funds to repurchase shares, thus attempting to push the speculative stock price even higher -- *to their own personal gain*.²⁷ Given the extent to which stock repurchases have become a systematic mode of corporate resource allocation, and given the extent to which through this manipulation of their corporation's stock price top executives have enriched themselves personally in the process, there is every reason to believe that, in the absence of legislation

²⁶ For an in-depth analysis of the attraction, retention, motivation, and recognition functions of employee stock options, and the labor-market conditions under which they might perform different functions, see Glimstedt et al. 2006.

²⁷ On managerial opportunism and insider trading in the context of stock repurchases, see Fried 2000, 2001 and 2008a.

that restricts both stock repurchases and gains from stock options, executive behavior that places personal interests ahead of corporate interests will continue in the future.²⁸

Stock repurchases are, in my view, central to a massive redistribution process that in the United States has made the rich even richer at the expense of stable and equitable economic growth. It is a process that received ample encouragement from the inaptly named Jobs and Growth Tax Relief Reconciliation Act of 2003 that reduced tax rates on dividends from 38.6 percent (the top tax on ordinary income) to 15 percent and on capital gains (including of course those derived from selling stock) from 20 percent to 15 percent (McNamee and Scherreik 2003). Despite the fact that the 2003 Act reduced the tax on dividends even more than the tax on capital gains, since 2002, as we have seen, US corporations have increased stock repurchases even more than they have increased dividends (Blouin et al. 2007).²⁹

The main reason, in my view, is that repurchases tend to boost stock prices, which in turn increases the returns from stock options (see Jolls 1998; Grullon and Ikenberry 2000, 41-42; Weisbenner 2000; Fenn and Liang 2001; Kahle 2002; Hsieh and Wang 2006).³⁰ As I have shown in Table 5 for the case of leading ICT companies, the gains from stock options of the people at the top of the corporation are typically hundreds of times, and often thousands of times, the average gains per employee in their company. Certainly, as in the late 1990s, when the stock market has moved up rapidly, millions of non-executive employees who held stock options benefited, and at companies like Cisco and Microsoft smaller numbers of non-executive employees benefited immensely. For many if not most non-executive employees, however, the gains from stock options were ephemeral, as the decline of the early 2000s was followed by the “jobless recovery” of 2003 in which the acceleration of offshoring played an important role.

There has been virtually no public policy debate in the United States over the practice of buybacks, its acceleration in recent years, or the implications for both the distribution of income and economic growth. Changes may, however, be afoot. On July 31, 2008, after Exxon Mobil had announced record second quarter profits of \$11.7 billion, and stock buybacks of \$8.0 billion, prominent Congressional Democrats took aim at stock repurchases

²⁸ It should be noted in this regard that many countries do not permit stock repurchases (Grullon and Michaely 2002, 1677). Indeed, until 1982 the US Securities and Exchange Commission (SEC) had at times viewed stock repurchases as a manipulation of a company’s stock price. As Grullon and Michaely (2002, 1649) put it: “[U]ntil 1982, there were no explicit rules directly regulating share repurchase activity in the United States. This situation exposed repurchasing firms to the risk of triggering a SEC investigation and being charged with illegal market manipulation.” In that year, however, as part of the general deregulation of financial institutions that had been taking place since the late 1970s, the SEC “made it easier for companies to buy back their shares on the open market without fear of SEC stock-manipulation charges” (Hudson 1982). Specifically, under Rule 10b-18, the SEC assured companies 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 (see Grullon and Michaely 2002, 1676-1682).

²⁹ Also slowing the growth of dividends relative to repurchases is the fact that insofar as a company that pays dividends reduces its shares outstanding through repurchases, it automatically reduces the total amount of dividends that it pays out.

³⁰ A recent article (Billett and Xue 2007, 42) entitled “Share Repurchases and the Need for External Finance” opens with the statement: “One of the best-documented findings in the corporate finance literature is that stock prices go up when companies announce their intent to buy back shares.”

by the big oil companies (see note 13). In the Congressional press release, Sen. Charles Schumer (D-NY) stated:

Inside the boardrooms at the major oil companies, it's Christmas in July. What's shocking is that Big Oil is plowing these profits into stock buybacks instead of increasing production or investing in alternative energy. Why do they need more [public] land to drill on when all their money is going into buying up stock?³¹

Schumer was also quoted as saying:

They tell us they want to do more domestic production. They tell us they need to drill offshore. They tell us that they can find oil on the mainland. And what do they do with their profits? They buy back stock, simply to increase their share price. (Hays and Ivanovich 2008).

As we have seen, it is not only the oil companies that are doing multi-billion dollar buybacks. The practice pervades the US economy. Are top executives who spend much of their time and energy thinking about how to manipulate the stock market through stock repurchases devoting sufficient time and energy to thinking about how to confront the technological, market, and competitive uncertainties with which, in a globalized economy, even the most powerful companies must be concerned?

From a public policy perspective, should the people who exercise strategic control over the corporate allocation of resources have such overwhelming personal incentives to allocate resources for the sole purpose of boosting their companies' stock prices? Should high-tech companies be doing massive and systematic repurchases while appealing to the government to finance investment in the technologies of the future? Should companies that make high profits by charging high oil prices or high drug prices be using these profits to make massive and systematic buybacks instead of spending more on discovering oil and developing drugs? Or should the prices that these oil and drug companies charge be regulated along with a prohibition on stock repurchases? As in the cases of the Wall Street banks and Fannie Mae, should the government be in the business of bailing out companies that run into trouble when these companies may have been able to bail themselves out but for the massive and systematic repurchases that they have done in recent years?

To ask these questions is to raise a larger public policy issue of how much resources should go into propping up the stock market, and indeed the questions of why the stock market has

³¹ "Democrats tell big oil: Spend more on production and renewable energy, less on stock buybacks before making demands for new drilling leases," UUS Congressional Documents and Publications, July 31, 2008. Sen. Schumer first raised the issue in January 2006 in reaction to the fact that in the previous year Exxon Mobil had spent more on repurchases than on development and exploration. Schumer was quoted as saying "the federal government has a responsibility to make sure that these companies continue to innovate instead of just profiting from the status quo" (Piller 2006). Rep. Ed Markey (D-MA) began raising the issue in May 2008, when he was quoted as saying "Big Oil is spending their profits to prop up their stock price rather than on discovering and delivering alternatives to \$4 gas" (Souder 2008).

Lazonick: The Quest of Shareholder Value

become so central to the operation of the US economy and whether, if we wish to have sustainable prosperity, it should remain so. A vital first step in addressing these questions is to jettison the ideology that maximizing shareholder value leads to the highest common good.

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