

Why Executive Pay Matters to Innovation and Inequality

William Lazonick
University of Massachusetts Lowell
and
Université Montesquieu-Bordeaux IV

william_lazonick@uml.edu

May 4, 2010

Paper to be presented at the Workshop on Innovation & Inequality: New Indicators from Pharma and Beyond, sponsored by the European Commission's FINNOV and DIME projects, Sant'Anna School of Advanced Studies, Pisa, Italy, May 15-16, 2010.

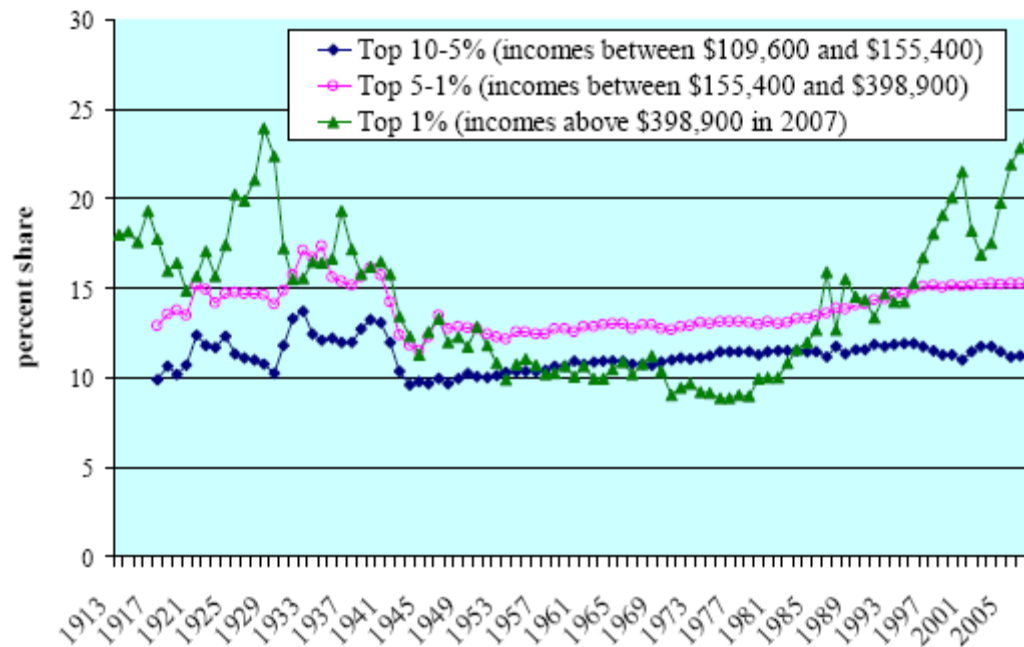
This paper builds on research in William Lazonick, *Sustainable Prosperity in the New Economy? Business Organization and High-Tech Employment in the United States*, Upjohn Institute for Employment Research, 2009; "The New Economy Business Model and the Crisis of US Capitalism," *Capitalism and Society*, 4, 2, 2009; and "The Explosion of Executive Pay and the Erosion of American Prosperity," *Entreprises et Histoire*, 57, 2010. The research is being funded by the FINNOV project through Theme 8 of the Seventh Framework Programme of the European Commission (Socio-Economic Sciences and Humanities), under the topic "The role of finance for growth, employment and competitiveness in Europe" (SSH-2007-1.2-03), and by the Ford Foundation project on "Financial institutions for innovation and development".

1. Inequitable and unstable economic growth

The United States is the richest economy in the world. Yet in the 2000s the United States has been unable to deliver equitable and stable economic growth to its own population (Lazonick 2009a, ch. 1). The national unemployment rate, which was over six percent in the “jobless recovery” of 2003, exceeded ten percent in the “jobless recovery” of 2009. Even the jobs of well-educated and experienced members of the labor force have been vulnerable to downsizing and offshoring. Given that the financial meltdown of 2008 has not resulted in significant government regulation, there is reason to believe that financial chaos will return in the not-too-distant future.

The distribution of income has become increasingly unequal over the past three decades, with a disappearance of middle-income jobs (see, e.g., Autor et al. 2008; Warren 2009). As shown in Figure 1, in the last half of the 2000s, the share of total income going to the top one percent of households rose to well over 20 percent (Saez 2009).

Figure 1. Shares of top income recipients in the United States, 1913-2007



Source: Saez 2009, <http://elsa.berkeley.edu/~saez/>

On the basis of data for the top-0.1 percent of the income distribution of the United States for 1916-2000, Thomas Piketty and Emanuel Saez (2006, 202) observe in a paper entitled “The Evolution of Top Incomes: A Historical and International Perspective” that “[s]alary income has been driving up top incomes and has now become the main source of income at the very top”, and that, across the advanced economies over the last quarter of the twentieth century, the income share going to the top-0.1 percent was largest in the

United States.¹ Piketty and Saez (2006, 204) conclude this paper with the statement: “Although cross-country analysis will always suffer from severe identification problems, our hope is that the database will renew the analysis of the interplay between inequality and growth.” Yet, as in their other work on concentration of income at the top in the United States, Piketty and Saez ignore the role of stock-based compensation in general and stock options in particular in driving the increases in the “salaries” of the top income recipients.²

In this paper I argue that a prime cause of the growing inequity and instability in the US economic system is the stock-based compensation of the executives who run the nation’s leading industrial and financial corporations. In the 1980s and 1990s agency theorists advocated this type of compensation as an incentive for corporate executives to “maximize shareholder value” (MSV), and thereby improve the performance of the economy as a whole (see Jensen 1986; Jensen and Murphy 1990). In the next section of this paper, I argue that the basic tenets of agency theory are contradicted by the theory of innovative enterprise (see Lazonick and O’Sullivan 2000; Lazonick 2002, 2010b and 2010c). Then I show that in the corporate economy of the United States, the implementation of the incentives advocated by agency theory for the sake of MSV have over the past three decades resulted in an explosion of top executive pay. I go on to document the importance of stock buybacks in the United States as an instrument for MSV that, by manipulating a company’s stock price, helps to boost executive pay. Finally I contend that in the United States the use of stock-based compensation, and in particular stock options, to motivate corporate executives to have a strong personal interest in the performance of their companies’ stock prices has resulted in not only an inequitable distribution of income but also reduced investment in innovation and unstable economic performance.

2. Maximizing shareholder value

Since the early 1980s corporate executives have justified their stock-based compensation as well as the corporate financial behavior that increases it by the dominant ideology that the role of the corporate executive is to “maximize shareholder value” (MSV) (Rappaport 1981 and 1983). At the same time, through agency theory, academic economists have supported this ideology by propounding a shareholder-value perspective on corporate governance that is consistent with the neoclassical theory of the market economy (Fama and Jensen 1983a and 1983b). Especially in the United States, MSV remains the dominant ideology of corporate governance not only in business schools and economics departments but also in executive suites and corporate boardrooms.

¹ For data, 1916-2007, on the composition of the incomes of the top-0.1 percent in terms of salaries, business income, capital income, and capital gains, see Saez 2009, fig 4new.

² In a paper on top incomes in Canada that refers to stock-based compensation, Saez and Veall (2005, 841) note: “In contrast to the United States, on Canadian tax returns, profits from stock-option exercises can be separated out from wages and salaries.” For data that Saez adduces on stock-option remuneration as a share of total remuneration for the 100 highest-paid US CEOs, 1970-1999, see <http://elsa.berkeley.edu/~saez/>, Table B4(CEOs). For the reasons why most of the gains of executives from exercising stock options are, for taxation purposes, deemed to be personal income rather than capital gains, see Lazonick 2010c.

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

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

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

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

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

How can those managers who control the allocation of corporate resources be motivated, or coerced, to distribute cash to shareholders? If a company does not maximize shareholder value, shareholders can sell their shares and reallocate the proceeds to what they deem to be more efficient uses. The sale of shares depresses that company's stock price, which in turn facilitates a takeover by shareholders who can put in place managers who are willing to distribute the free cash flow to shareholders in the forms of higher dividends and/or stock repurchases. Better yet, as Jensen argued in the midst of the 1980s corporate takeover movement, let corporate raiders use the market for corporate control for debt-financed takeovers, thus enabling shareholders to transform their corporate equities into corporate bonds. Corporate managers would then be "bonded" to distribute the "free cash flow" in the form of interest rather than dividends (Jensen 1986, 324).

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

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

To some extent, the stock market boom of the 1980s and 1990s was driven by New Economy innovation. By the late 1990s, however, innovation had given way to speculation as a prime mover of stock prices. Then, after the collapse of the Internet bubble at the beginning of the 2000s, corporate resource allocation sought to restore stock prices through manipulation in the form of stock buybacks. This massive "disgorging" of the corporate cash flow manifests a decisive triumph of agency theory and its shareholder-value ideology in the determination of corporate resource allocation.

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

Agency theory makes an argument for taking resources out of the control of inefficient managers without explaining how, historically, corporations came to possess the vast amounts of resources over which these managers could exercise allocative control (see Lazonick 1992). From the first decades of the 20th century, the separation of share ownership from managerial control characterized US industrial corporations. This separation occurred because the growth of innovative companies demanded that control over the strategic allocation of resources to 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. Thereby enriched, they were able to retire from their positions as top executives. The departing owner-entrepreneurs left control in the hands of senior salaried professionals, most of whom had been recruited decades earlier to help to build the enterprises. The resultant disappearance of family owners in positions of strategic control enabled the younger generation of salaried professionals to view the particular corporations that employed them as ones in which, through dedicated work effort over the course of a career, they could potentially rise to the ranks of top management.

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

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 in the past.

Agency theory also does not address how, at the time when innovative investments are made, one can judge whether managers are allocating resources inefficiently. Any

strategic manager who allocates resources to an innovative strategy faces technological, market, and competitive uncertainty. Technological uncertainty exists because the firm may be incapable of developing the higher-quality processes and products envisaged in its innovative investment strategy. Market uncertainty exists because, even if the firm succeeds in its development effort, future reductions in product prices and increases in factor prices may lower the returns that can be generated by the investments. Finally, even if a firm overcomes technological and market uncertainty, it still faces competitive uncertainty: the possibility that an innovative competitor will have invested in a strategy that generates an even higher-quality, lower-cost product that enables it to win market share.

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

Moreover, it is simply not the case, as agency theory assumes, that all the firm’s participants other than shareholders receive contractually guaranteed returns according to their productive contributions. Given its investments in productive resources, the state has residual-claimant status. Any realistic account of economic development must take into account the role of the state in 1) making infrastructural investments that, given the required levels of financial commitment and inherent uncertainty of economic outcomes, business enterprises would not have made on their own; and 2) providing business enterprises with subsidies that encourage investment in innovation. In terms of investment in new knowledge with applications to industry, the United States was the world’s foremost developmental state over the course of the 20th century (see Lazonick 2008). 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).

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

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

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

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

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.

What role do public shareholders play in this innovation process? Do they confront uncertainty by strategically allocating resources to innovative investments? No. As portfolio investors, they diversify their financial holdings across the outstanding shares of existing firms to minimize risk. They do so, moreover, with limited liability, which means that they are under no legal obligation to make further investments of "good"

money to support previous investments that have gone bad. Indeed, even for these previous investments, the existence of a highly liquid stock market enables public shareholders to cut their losses instantaneously by selling their shares – what has long been called the “Wall Street walk”.

Without this ability to exit an investment easily, public shareholders would not be willing to hold shares of companies over the assets of which they exercise no direct allocative control. It is the liquidity of a public shareholder’s portfolio investment that differentiates it from a direct investment, and indeed distinguishes the public shareholder from a private shareholder who, for lack of liquidity of his or her shares, must remain committed to his or her direct investment until it generates financial returns. The modern corporation entails a fundamental transformation in the character of private property, as Adolf Berle and Gardiner Means (1932) recognized. As property owners, public shareholders own tradable shares in a company that has invested in real assets; they do not own the assets themselves.

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

3. Speculation and manipulation in the explosion of executive pay

The ideology of maximizing shareholder value is an ideology through which US corporate executives have been able to enrich themselves. In this they were aided in the 1980s and 1990s by academic proponents of the ideology such as Michael Jensen who argued that aligning the interests of top executives with those of public shareholders would result in a mode of resource allocation that would result in superior performance in the economy as a whole. The result has been an explosion and re-explosion of executive pay over the past three decades, fueled by stock-based compensation.

According to AFL-CIO Executive Paywatch (2009), the ratio of the average pay of CEOs of 200 large US corporations to the pay of the average full-time US worker was 42:1 in 1980, 107:1 in 1990, 525:1 in 2000, and 319:1 in 2008. As shown in Table 1, the average annual real compensation in 2008 dollars of the 100 highest paid corporate executives named in company proxy statements was \$20.7 million in 1992-1995, \$78.2 million in 1998-2001, and \$62.0 million in 2004-2007.

Table 1. Total compensation of top executives of US-based corporations, average for 100, 500, 1500, and 3000 highest-paid executives, and the proportion of total compensation derived from gains from exercising stocks options**Mean compensation in millions of 2008 US dollars**

	S&P 500 Index	NAS- DAQ Index	NAS- DAQ/ S&P	Top 100		Top 500		Top 1500		Top 3000	
				Mean \$m.	% SO	Mean \$m.	% SO	Mean \$m.	% SO	Mean \$m.	% SO
1992	100	100	1.00	22.8	71	9.2	59	4.7	48	2.9	42
1993	109	119	1.10	21.0	63	9.0	51	4.7	42	3.1	36
1994	111	125	1.13	18.3	57	8.0	45	4.3	35	2.9	29
1995	131	155	1.18	20.6	59	9.6	48	5.2	40	3.4	34
1996	162	195	1.20	31.9	64	13.7	54	7.1	47	4.5	41
1997	210	243	1.16	43.5	72	18.3	61	9.3	55	5.8	49
1998	261	300	1.15	77.2	67	26.9	65	12.5	59	7.5	54
1999	319	462	1.45	69.0	82	27.5	71	13.2	63	7.9	57
2000	341	614	1.80	104.1	87	40.4	80	18.7	73	10.8	67
2001	284	332	1.17	62.3	77	23.7	66	11.3	58	6.8	53
2002	237	252	1.06	37.4	57	16.8	49	8.6	43	5.4	38
2003	232	275	1.18	48.4	64	21.0	55	10.7	48	6.7	43
2004	272	330	1.21	54.6	75	24.6	62	12.8	55	8.0	50
2005	290	348	1.20	66.5	78	28.2	63	14.3	56	8.9	51
2006	316	463	1.47	67.3	68	29.0	58	15.1	51	9.5	46
2007	354	428	1.21	59.6	69	27.4	58	14.6	50	9.3	45
2008	291	356	1.22	39.2	62	16.6	48	8.3	38	5.0	33

S&P 500 Index and the NASDAQ Composite Index set to 100 in 1992 for purposes of comparison. Total compensation (TDC2 in the Compustat database) is defined as “Total compensation for the individual year comprised of the following: Salary, Bonus, Other Annual, Total Value of Restricted Stock Granted, Net Value of Stock Options Exercised, Long-Term Incentive Payouts, and All Other Total”).

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

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

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

As can be seen in Table 1, large proportions of these enormous incomes of top executives have come from gains from cashing in on the ample stock option awards that their boards of directors have bestowed on them.³ The higher the “top pay” group, the greater the proportion of the pay of that group that was derived from gains from exercising stock

³ A stock option award gives an employee the non-transferable right to purchase a certain number of shares of the company for which he or she works at a pre-set “exercise” price between the date the option “vests” and the date it “expires”. Typically in US option grants, the exercise price is the market price of the stock at the date that the option is granted; vesting of the option occurs in 25% installments at each of the first four anniversaries from the grant date; and the expiration date of the option is ten years from the grant date. Unvested options usually lapse 90 days after termination of employment with the company.

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

Note in Table 1 how the average pay of the highest paid corporate executives has risen and fallen with the fluctuations of major stock market indices. In the 1980s and 1990s, as shown in Table 2, high real stock yields characterized the US corporate economy. These high yields came mainly from stock-price appreciation as distinct from dividends yields, which were low in the 1990s despite high dividend payout ratios.⁴ With the S&P 500 Index rising almost 1,400 percent from March 1982 to August 2000, the availability of gains from exercising stock options became almost automatic. Given the extent to which the explosion in US top executive pay over the past three decades has been dependent on gains from exercising stock options, there is a need to understand the drivers of the stock-price increases that generate these gains.

Table 2: Average annual US corporate stock and bond yields (%), 1960-2009

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

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

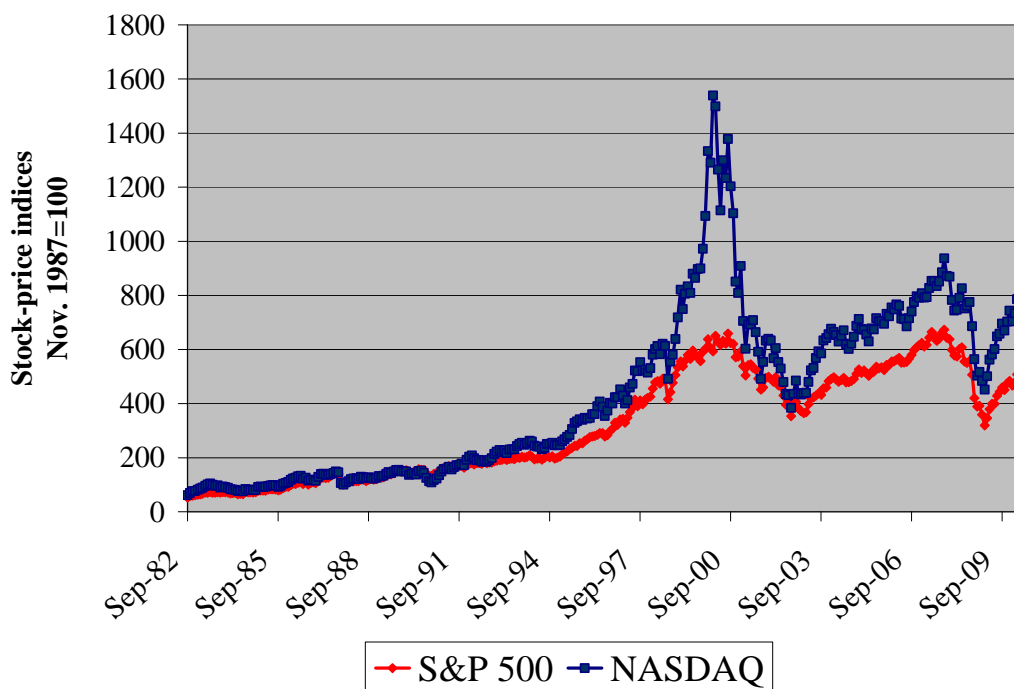
Sources: Updated from Lazonick and O'Sullivan 2000, 27, using US Congress 2010, Tables B-62, B-73, B-95, B-96.

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

⁴ In the 1980s dividends paid out by US corporations increased by an annual average of 10.8 percent while after-tax corporate profits increased by an annual average of 8.7 percent. In the 1990s these figures were 8.0 percent for dividends (including an absolute decline in dividends of 4.0 percent in 1999, the first decline since 1975) and 8.1 percent for profits. The dividend payout ratio – the amount of dividends as a proportion of after-tax corporate profits (with inventory evaluation and capital consumption adjustments) – was 48.9 percent in the 1980s and 55.0 percent in the 1990s compared with 39.5 percent in the 1960s and 41.6 percent in the 1970s. From 2000 to 2009 the dividend payout ratio was 61.5 percent, including a record 70.4 percent in 2007.

Figure 2 charts the roles of innovation, speculation, and manipulation as *primary* drivers of US stock-price movements from the mid-1980s to the late 2000s. In the last half of the 1980s Old Economy companies that had run into trouble because of conglomeration in the United States and/or competition from the Japanese sought to manipulate stock prices through a “downsize-and-distribute” resource-allocation strategy (Lazonick 2004). This redistribution of corporate revenues from labor incomes to capital incomes often occurred through debt-financed hostile takeovers, with post-takeover downsizing enabling the servicing and retirement of the massive debt that a company had taken on. In addition, from the mid-1980s, many Old Economy companies engaged for the first time in large-scale stock repurchases in an attempt to support their stock prices. In the 1990s and 2000s stock buybacks would become a prime mode of corporate resource allocation. The main, and for most major US corporations only, purpose of stock buybacks is to manipulate stock prices (Lazonick 2009b).

Figure 2. S&P 500 and NASDAQ Composite Indices, September 1982-April 2010 (monthly data, standardized for the two indices to 100 in November 1987)



As of August 2009 the S&P 500 Index consisted of 500 stocks, of which 410 were NYSE and 90 NASDAQ; and the NASDAQ Composite Index consisted of 2,809 stocks.

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

While Old Economy companies were manipulating stock prices in the 1980s and early 1990s, New Economy companies such as Intel, AMD, Microsoft, Oracle, Solectron, EMC, Sun Microsystems, Cisco Systems, Dell, and Qualcomm were reinvesting virtually all of their incomes to finance the growth of their companies, neither paying dividends nor, once they had gone public, repurchasing stock (Lazonick 2009a, ch. 2). It was

innovation by New Economy companies, most of them traded on NASDAQ, that culminated in the Internet revolution that provided a real foundation for the rising stock market in the 1980s and first half of the 1990s.

These New Economy companies had broad-based stock option programs that extended to non-executive employees. In the speculative boom of 1999-2000, the gains from exercising stock options of the average worker could be enormous. The most extreme example is Microsoft; in 2000 alone the gains across about 39,000 employees (not including the five highest paid executives) averaged an estimated \$449,000 (see Lazonick 2009b). During the same year, the gains from exercising stock options of the five highest paid Microsoft executives averaged \$50.7 million – a ratio of “top5” gains to average worker gains of 113:1.

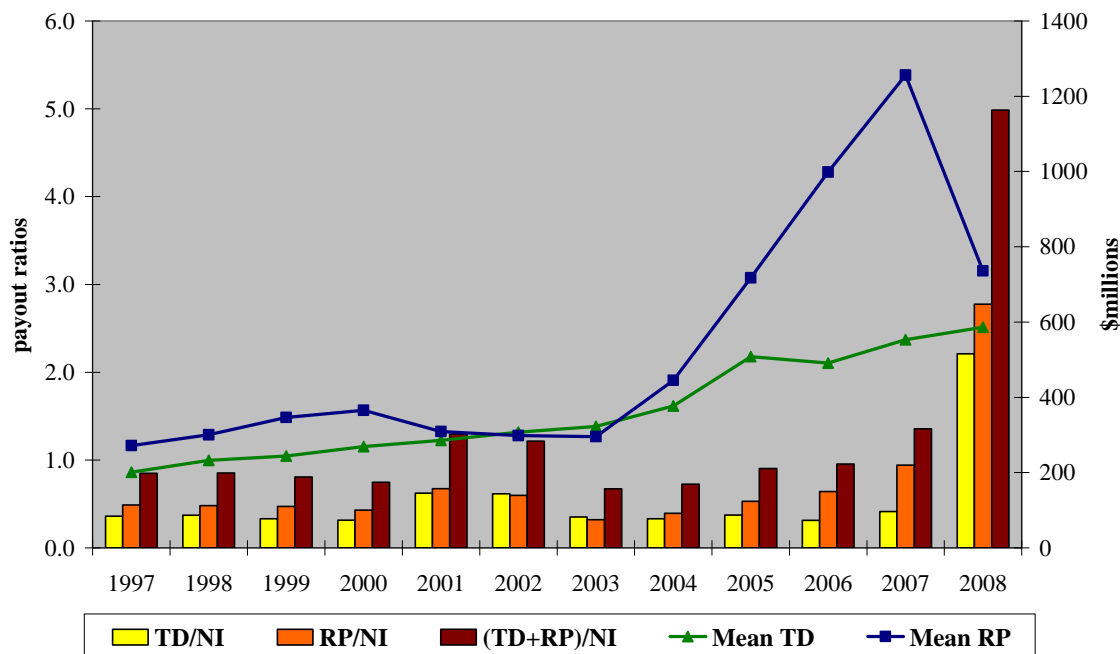
In the late 1990s speculation took over, driving the stock market to unsustainable heights. As Figure 2 shows, the speculation in companies listed on NASDAQ was much more pronounced than in the companies that make up the S&P 500 Index, over 80 percent of which are listed on the New York Stock Exchange (NYSE). In 2000 the average compensation of the top 100 NASDAQ executives was 19 percent higher than that of the top 100 NYSE executives, while in 2007 the compensation of the top 100 NYSE executives was 11 percent higher than that of the top 100 NASDAQ executives. In both years the proportion of the compensation that came from exercising stock options was higher for NASDAQ executives than for NYSE executives. Still, even for the NYSE executives, this proportion was 78 percent for the top 100 and 53 percent for the top 3000 in 2000, and 65 percent for the top 100 and 43 percent for the top 3000 in 2007. Whether their companies are listed on NASDAQ or NYSE, stock options give the top executives of US corporations a huge personal financial stake in a rising stock market.

In the 2000s the stock-option gains of these executives have come primarily through manipulation as distinct from innovation and speculation. The key instrument of stock-market manipulation is the stock repurchase. A stock repurchase occurs when a company buys back its own shares. In the United States, the Securities and Exchange Commission (SEC) requires stock repurchase *programs* to be approved by the board of directors. These programs authorize a company’s top executives to do a certain amount of buybacks over a certain period of time. It is then up to the top executives to decide whether the company should actually do repurchases, when they should be done, and how many shares should be repurchased at any given time. Repurchases are almost always done as open market transactions through the company’s broker. The company is not required to announce the buybacks at the time they are actually done, although since 2004 it has been an SEC rule that, in their quarterly financial reports, companies must state the amount of repurchases in the past quarter and the average purchase price.

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

massive manipulation of the market through stock repurchases, especially from 2003. Figure 3 shows the payout ratios and mean payout levels for 438 companies in the S&P 500 Index in January 2008 that were publicly listed from 1997 through 2008.⁵

Figure 3: Ratios of cash dividends and stock repurchases to net income, and mean dividend payments and stock repurchases among S&P 500 (437 companies), 1997-2008



Data for 438 corporations in the S&P 500 Index in January 2008 publicly listed 1997 through 2008 RP, stock repurchases; TD, total dividends (common and preferred); NI, net income (after tax with inventory evaluation and capital consumption adjustments). Sources: S&P Compustat database (North America, Fundamentals Annual, 1997-2008); company 10-K filings for missing or erroneous data from the Compustat database.

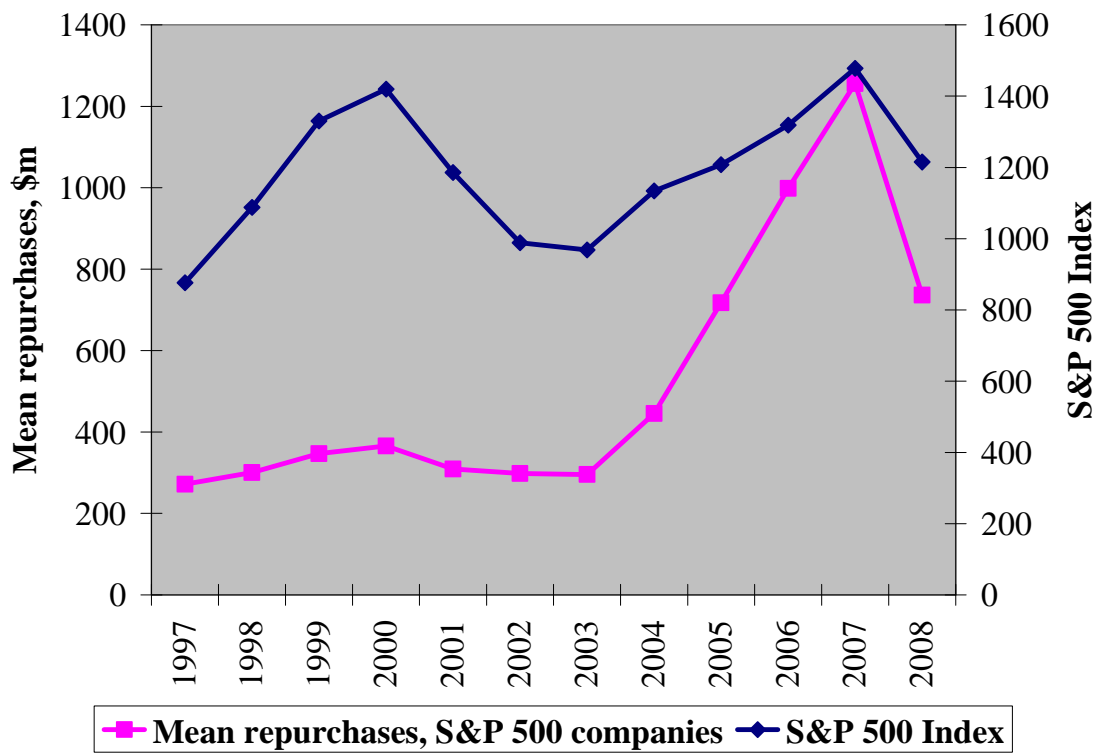
From 1997 through 2008 these 437 companies expended \$2.4 trillion on stock repurchases, an average of \$5.6 billion per company, and distributed a total of \$1.7 trillion in cash dividends, an average of \$3.8 billion per company. Stock repurchases by these 437 companies averaged \$323 million in 2003, rising to \$1,256 million in 2007. Combined, the 500 companies in the S&P 500 Index in January 2008 repurchased \$436 billion of their own stock in 2006, representing 64 percent of their net income, and \$549 billion in 2007, representing 94 percent of their net income.

Figure 4 shows how the escalating stock repurchases from 2003 through 2007 helped to boost the stock market, driving the S&P 500 Index even higher in 2007 than its previous peak in 2000 before the 2008 financial debacle. In 2008 repurchases fell substantially for these 438 companies, constrained by a dramatic decline in combined net income from

⁵ I treat data for companies with fiscal years ending January 1-June 30 as representing the previous calendar year, and for fiscal years ending July 1-December 31 as representing the current calendar year.

\$583 billion in 2007 to \$132 billion in 2008. Nevertheless, their combined repurchases only declined from \$523 billion to \$369 billion. As a result, the repurchase payout ratio more than tripled from 0.90:1 to 2.80:1. In addition, these companies paid out \$5 billion more in dividends in 2008 than in 2007, with the result that the dividend payout ratio leapt from 0.41:1 to 1.86:1. Allocated differently, the billions spent on buybacks could have helped stabilize the economy. Instead, collectively, these companies not only spent all their profits on repurchases but also ate into their capital.

Figure 4. Stock repurchases by the S&P 500 (437 companies) and the movement of the S&P 500 Index, 1997-2008



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

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

tens of millions). Yet, if anything, these same corporate executives as *corporate decision-makers* used corporate funds to repurchase their companies' shares in the attempt to bolster their stock prices – to their own personal gain. Given the 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 corporations' stock prices top executives have enriched themselves personally in the process, there is every reason to believe that, in the absence of legislation that restricts both stock repurchases as well as speculative and manipulative gains from stock options, executive behavior that places personal interests ahead of corporate interests will continue in the future.

There are a number of ways in which stock options as a mode of executive compensation can be abused. A company might reprice options that are underwater by cancelling an existing option and replacing it with a new option with a lower exercise price (Chance et al. 2000; Ellig 2007, 434-435). As a result, an executive may be able to reap gains from stock-option grants even when the company's stock price declines. In 2006 a scandal broke out over the practice of backdating stock options – that is, granting option awards today as if they were granted at an earlier date when the market price of the stock and hence the exercise price of the options were lower (Lie 2005; Forelle and Bandler 2006; Bernile and Jarrell 2009). Abuses can also occur in the timing of the exercise of options. Given the fact that in the United States companies are not required to announce the dates on which they actually do open market repurchases, there is an opportunity for top executives who have this information to engage in insider trading by using this information to time option exercises and stock sales (see Fried 2000 and 2001).

The more fundamental problem with US-style stock options, however, is that they are unindexed; that is, they virtually never carry any performance criteria that would only permit an executive to gain from the exercise of stock options when the company's stock-price increases are greater than those warranted by productive performance (Bebchuk and Fried 2004). As a result, an executive, or any other employee with stock options, can gain from a speculative stock market as distinct from an improvement in the company's productive performance. In addition, as I have argued, executives can augment their stock-option gains by allocating corporate resources to do buybacks, the sole purpose of which is to manipulate the company's stock price. Some of the stock-based compensation of US executives is undoubtedly attributable to innovation, although even then there is the question of whether the stock-based compensation that executives secure is equitable relative to other contributors to the innovation process. Be that as it may, since the last half of the 1990s it has been speculation and manipulation that have been the main drivers of the explosion in the pay of US corporate executives.

4. Stock buybacks as “weapons of value destruction”

The ideology of maximizing shareholder value is an ideology through which US corporate executives have been able to enrich themselves. In this they were aided in the 1980s and 1990s by academic proponents of the ideology such as Michael Jensen who argued that aligning the interests of top executives with those of public shareholders would result in a mode of resource allocation that would result in superior performance in

the economy as a whole. The result has been an explosion and re-explosion of executive pay over the past three decades, fueled by stock-based compensation.

My analyses of different industries (some of which I have studied in more depth than others) strongly suggest that the explosions in executive pay are coming at the expense of innovation and the upgrading of employment opportunities in the US economy. In what follows, I present some pertinent evidence from key sectors of the US economy (for elaborations, see Lazonick 2009a, ch. 6; 2009b).

Among the biggest stock repurchasers in the years prior to the financial crisis were many of banks that were responsible for the meltdown and were bailed out under the Troubled Asset Relief Program. They included Citigroup (\$41.8 billion repurchased in 2000-2007), Goldman Sachs (\$30.1 billion), Wells Fargo (\$23.2 billion), JP Morgan Chase (\$21.2 billion), Merrill Lynch (\$21.0 billion) Morgan Stanley (\$19.1 billion), American Express (\$17.6 billion), and US Bancorp (\$12.3 billion). In the eight years before it went bankrupt in 2008, Lehman Brothers repurchased \$16.8 billion, including \$5.3 billion in 2006-2007. Washington Mutual, which also went bankrupt in 2008, expended \$13.3 billion on buybacks in 2000-2007, including \$6.5 billion in 2006-2007. Wachovia, ranked 38th among the Fortune 500 in 2007, did \$15.7 billion in buybacks in 2000-2007, including \$5.7 billion in 2006-2007, before its fire sale to Wells Fargo at the end of 2008. Other financial institutions that did substantial repurchases in the 2000s before running into financial distress in 2008 were AIG (\$10.2 billion), Fannie Mae (\$8.4 billion), Bear Stearns (\$7.2 billion), and Freddie Mac (\$4.7 billion). By spending money on buybacks during boom years, these financial corporations reduced their ability to withstand the crash of the derivatives market in 2008, thus exacerbating the jeopardy that they created for the economy as a whole.

Among the top ten repurchasers of stock in 2000-2008 were five of the leading ICT companies: Microsoft (the #2 repurchaser with \$94.3 billion in buybacks), IBM (#3, \$72.9 billion), Cisco Systems (#5, \$53.6 billion), Intel (#8, \$48.8 billion), and Hewlett-Packard (#10, \$43.3 billion). All of these companies spent more on buybacks than they spent on R&D in 2000-2008. In the 2000s, all of these companies have been globalizing employment, and profiting through the creation of high-tech jobs in lower wage parts of the world such as China and India while using the profits of globalization to do stock buybacks at home (Lazonick 2009b; Milberg 2008).

Meanwhile, US high-tech companies lobby the US government for more public investment in the US high-technology knowledge base, even as the companies allocate their own profits to huge stock buybacks. For example, in the 2000s Intel along with the Semiconductor Industry Association (SIA) has been lobbying the US Congress for more spending on the National Nanotechnology Initiative (NNI). At a press conference that the SIA organized in Washington DC in March 2005, Intel CEO Craig Barrett warned: "U.S. leadership in the nanoelectronics era is not guaranteed. It will take a massive, coordinated U.S. research effort involving academia, industry, and state and federal governments to ensure that America continues to be the world leader in information technology" (Electronic News 2005). In 2005 the annual NNI budget was \$1.2 billion, just 11 percent of the \$10.6 billion that Intel spent on stock repurchases in that year alone. Indeed, Intel's

2005 expenditures on stock buybacks exceed the total of \$10.1 billion that has been spent on NNI since its inception in 2001 through 2009.⁶ Given the extent to which the ICT industry in general, and a company like Intel in particular, has benefited from decades of government investments in the high-tech knowledge base, one might ask whether a portion of the massive funds that Intel allocates to buying back its own stock could not be more productively allocated “to ensure that America continues to be the world leader in information technology.”

Among the largest repurchasers of stock in the 2000s have been pharmaceutical companies. For 2000-2008 Pfizer was the #7 repurchaser with \$50.6 billion in buybacks, Johnson & Johnson #12 with \$33.3 billion, Amgen #24 with \$22.6 billion, and Merck #31 with \$18.7 billion. These and other US pharmaceutical companies charge higher drug prices in the United States than in other rich nations such as Japan, Canada, and France because, their executives argue, they need the higher earnings to fund their R&D efforts in the United States. Yet the very same companies do massive stock buybacks for the sole purpose of manipulating their stock prices. Meanwhile, the United States is the world leader in biopharmaceuticals in large part because of \$31 billion per annum that the National Institutes of Health spend in support of the life sciences knowledge base, as well as numerous government subsidies to the pharmaceutical industry, including those under the Orphan Drug Act of 1983 (see Lazonick and Tulum 2009). Instead of doing stock buybacks, the pharmaceutical companies could be contributing to the national life sciences effort, or lowering their drug prices to make their products more affordable to the American public.

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 innovation, employment, income distribution, and economic growth. Exceptionally, in the summer of 2008 four Congressional Democrats took aim at stock repurchases by the big oil companies, after Exxon Mobil, by far the largest repurchaser of stock (\$144 billion in 2000-2008), had announced record second quarter profits of \$11.7 billion, of which \$8.8 billion went to stock buybacks (US Congress 2008). In a letter to oil industry executives, the Congressmen asked them to “pledge to greatly increase the ratio of investments in production and alternatives to the amount of stock buybacks this year and next by investing much more of your profits into exploration and production on the leases you have been awarded in the U.S., and in the research and development of promising alternative energy sources” (US Congress 2008). Exxon Mobil did not pay much attention to this plea; in the last half of 2008 it repurchased another \$17.5 billion for a total of \$35.7 billion, or 79 percent of its net income, on the year. In the first three-quarters of 2009 Exxon Mobil did another \$17.3 billion in buybacks, equivalent to 131 percent of its net income.

Recently, the United States engaged in a debate over health care reform, with the companies that provide health insurance in the forefront of opposition to progressive change, including the availability of a “public option” that would provide households with an alternative source of health insurance to that offered by the business corporations.

⁶ The NNI budget was \$1,554 million in 2008 and \$1,695 million in 2009, and an estimated \$1,781 million for 2010 (www.nano.gov/html/about/funding.html).

Among the top 50 repurchasers for 2000-2008 were the two largest corporate health insurers: UnitedHealth Group at #23 with \$23.7 billion in buybacks and Wellpoint at #39 with \$14.9 billion (Lazonick 2010a). For each of these companies, repurchases represented 104 percent of net income for 2000-2008. Over this period, repurchases by the third largest insurer, Aetna, were \$9.7 billion, or 137 percent of net income, and the fifth largest, Cigna, \$9.8 billion, or 125 percent of net income. Meanwhile the top executives of these companies typically reaped millions of dollars, and in many years tens of millions of dollars, in gains from exercising stock options. A serious attempt at health care reform would seek to eliminate the profits of these health insurers, given that these profits are used solely to manipulate stock prices and enrich a small number of people at the top.

In the United States, the problem of exploding executive pay has been around for a long time, and virtually nothing has been done about it. Indeed, in his 2008 book, *Supercapitalism*, Robert Reich (2008, 105-114), former Secretary of Labor in the Clinton administration and in general a critic of “financialization”, justifies the explosion in executive pay by arguing that intense competition makes it much more difficult to find the talent who can manage a large corporation than it used to be. In an interview in February 2010, President Barack Obama was quoted as saying that paying top corporate executives in stock rather than cash is a “fairer way of measuring CEO success and ultimately will make the performance of American business better”. Referring specifically to the outsized remuneration of Lloyd Blankfein, CEO of Goldman Sachs and Jamie Dimon, CEO of JP Morgan, Obama went on to say: “I know both those guys; they are very savvy businessmen. And I like most of the American people, don't begrudge people success or wealth. That is part of the free-market system.” (Kuhnenn 2010)

The one attempt in the 1990s by Democrats to control the rise of executive pay ended up doing just the opposite. In 1993, after Bill Clinton became President of the United States, his administration implemented a campaign promise to legislate a cap of \$1 million on the amount of nonperformance-related, top-executive compensation that could be claimed as a corporate tax deduction. One perverse result of this law was that companies that were paying their CEOs less than \$1 million in salary and bonus *raised* these components of CEO pay toward \$1 million, which was now taken as the government-approved “CEO minimum wage”. The other perverse result was that companies increased CEO stock-option awards, for which tax deductions were not in any case being claimed, as an alternative to exceeding the \$1 million salary-and-bonus cap (Byrne 1994 and 1995).

A further irony of the Clinton legislation was that the high-tech lobby at the time was fighting against an attempt by the Financial Accounting Standards Board (FASB) to require companies to expense stock options. Especially for companies with broad-based stock option plans, this prospective regulatory change would have resulted in lower reported earnings that, it was thought, would result in lower stock prices. Hence, even though the proposed FASB regulation (which was ultimately decreed in 2004) would have reduced the corporate tax bill, corporate executives were against it. Why would these same executives have given much thought to the fact that there would be no *corporate* tax deductions for personal pay that exceeded the million-dollar cap?

Then as now, it is futile to talk about placing restrictions on executive compensation without limiting the extent to which executives can reap gains from stock options that result from either speculation or manipulation. Besides making manipulative stock repurchases illegal, legislation is needed to place limits on stock-option grants to individuals and to make the gains from the exercise of stock options dependent on achieving a variety of performance goals, including first and foremost ongoing contributions to high-quality job creation in the United States.

Economic activity entails both the creation of value, as goods and services are produced, and the extraction of value, as goods and services are consumed. Investment in innovation creates the potential for higher standards of living for those who contribute to the innovation process. Inequity occurs when certain groups in the economy – for example, top corporate executives – use their control over resource allocation to extract more than they create. Instability occurs when this excessive value extraction undermines innovation, and with it the potential for higher standards of living for the broader population. It is my contention that in the United States in the 2000s the stock-based compensation of corporate executives is a prime source of this instability, and the stock buyback is their most powerful “weapon of value extraction”. Indeed, my research suggests that, by undermining innovation, stock repurchases have become “weapons of value destruction”. Corporate stock repurchases should be banned, and stock-based compensation should be controlled so that executives cannot gain from speculation on and manipulation of the stock market. If not, we can expect that executive pay will continue to explode, and that, for lack of innovation and high-quality job creation, American prosperity will continue to erode.

References:

- AFL-CIO, 2009, "Executive PayWatch," at <http://www.aflcio.org/corporatewatch/paywatch/pay/index.cfm>.
- Autor, David H., Lawrence F. Katz, and Melissa S. Kearney, 2008, "Trends in U.S. Wage Inequality: Revising the Revisionists." *Review of Economics and Statistics*, 90, 2: 300–325.
- Baldwin, Carliss, and Kim Clark, 1992, "Capabilities and Capital Investment: New Perspectives on Capital Budgeting," *Journal of Applied Corporate Finance*, 5, 2: 67-87.
- Bebchuk, Lucian, and Jesse Fried, 2004, *Pay without Performance: The Unfulfilled Promise of Executive Compensation*, Harvard University Press.
- Berle, Adolf A., and Gardiner C. Means, 1932, *The Modern Corporation and Private Property*, Macmillan.
- Bernile, Gennaro, and Gregg A. Jarrell, 2009, "The Impact of the Options Backdating Scandal on Shareholders," *Journal of Accounting and Economics*, 47, 1-2: 2-26.
- Blair, Margaret M., 1995, *Ownership and Control: Rethinking Corporate Governance for the Twenty-First Century*, Brookings Institution.
- Byrne, John A., 1994, "That's some pay cap, Bill," *Business Week*, April 25.
- Byrne, John A., 1995, "CEO pay: Ready for takeoff," *Business Week*, April 24.
- Chance, Don M., Raman Kumar, and Rebecca B. Todd, 2000, "The 'Repricing' of Executive Stock Options," *Journal of Financial Economics*, 57, 1, 129-154.
- Christensen, Clayton M, Stephen P. Kaufman, and Willy C. Shih, 2008, "Innovation Killers: How Financial Tools Destroy Your Capacity to Do New Things," *Harvard Business Review*, 86, 1: 98-105.
- Electronic News, 2005, "US could lose race for nanotech leadership, SIA panel says," *Electronic News*, March 16.
- Ellig, Bruce R., 2007, *The Complete Guide to Executive Compensation*, McGraw-Hill.
- Fama, Eugene F., and Michael C. Jensen, 1983a, "Agency Problems and Residual Claims," *Journal of Law and Economics*, 26, 2: 327-349.
- Fama, Eugene F., and Michael C. Jensen, 1983b, "Separation of Ownership and Control," *Journal of Law and Economics*, 26, 2: 301-325.
- Forelle, Charles, and James Bandler, 2006, "The perfect payday: Some CEOs reap millions by landing stock options when they are most valuable; Luck – or something else?" *Wall Street Journal*, March 18, A:1.
- Fried, Jesse M., 2000, "Insider Signaling and Insider Trading with Repurchase Tender Offers." *University of Chicago Law Review*, 67, 2: 421–477.
- Fried, Jesse M., 2001. "Open Market Repurchases: Signaling or Market Opportunism." *Theoretical Inquiries in Law*, 2, 2: 1–30.
- Jensen, Michael C., 1986, "Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers," *American Economic Review*, 76, 2: 323-329.
- Jensen, Michael C., and Kevin J. Murphy, 1990, "Performance Pay and Top Management Incentives," *Journal of Political Economy*, 98, 2: 225-264.
- Kuhnenn, Jim, 2010, "Obama on CEO bonuses: He doesn't 'begrudge' wealth; compares to athletes' pay," *Associated Press Newswires*, February 10.

- Lazonick, William, 1992, "Controlling the Market for Corporate Control: The Historical Significance of Managerial Capitalism," *Industrial and Corporate Change*, 1, 3: 445-488.
- Lazonick, William, 2002, "Innovative Enterprise and Historical Transformation," *Enterprise & Society*, 3, 1, 2002: 35-54.
- Lazonick, William, 2004, "Corporate Restructuring," in Stephen Ackroyd, Rose Batt, Paul Thompson, and Pamela Tolbert, eds., *The Oxford Handbook of Work and Organization*, Oxford University Press: 577-601.
- Lazonick, William, 2008, "Entrepreneurial Ventures and the Developmental State: Lessons from the Advanced Economies," World Institute of Development Economics Research Discussion Paper dp2008-01.
- Lazonick, William, 2009a, *Sustainable Prosperity in the New Economy?: Business Organization and High-Tech Employment in the United States*, Upjohn Institute for Employment Research.
- Lazonick, William, 2009b, "The New Economy Business Model and the Crisis of U.S. Capitalism," *Capitalism and Society*, 4, 2.
- Lazonick, William, 2010a, "Insurance executives: A big part of our healthcare problem," *The Huffington Post*, March 16; at <http://www.huffingtonpost.com/william-lazonick/insurance-executives-a-big-part-of-our-healthcare-problem>
- Lazonick, William, 2010b, "The Chandlerian Corporation and the Theory of Innovative Enterprise," *Industrial and Corporate Change*, 19, 2: 317-349.
- Lazonick, William, 2010c, "The Explosion of Executive Pay and the Erosion of American Prosperity," *Entreprises et Histoire*, 57: 141-164.
- Lazonick, William, and Mary O'Sullivan, 2000, "Maximizing Shareholder Value: A New Ideology for Corporate Governance," *Economy and Society*, 29, 1: 13-35.
- Lazonick, William, and Öner Tulum, 2009, "US Biopharmaceutical Finance and the Crisis of the Biotech Industry," University of Massachusetts Lowell Center for Industrial Competitiveness, July.
- Lie, Erik, 2005, "On the Timing of CEO Stock Option Awards," *Management Science* 51, 5: 802-812.
- Louis, Henock, and Hal White, 2007, "Do Managers Intentionally Use Repurchase Tender Offers to Signal Private Information?: Evidence from Firm Financial Reporting Behavior," *Journal of Financial Economics*, 85, 1: 205-233.
- Milberg, William, 2008, "Shifting Sources and Uses of Profits: Sustaining U.S. Financialization with Global Value Chains," *Economy and Society*, 37, 3: 420-451.
- National Research Council, 1999, *Funding a Revolution: Government Support for Computing Research*, National Academies Press.
- O'Sullivan, Mary, 2004, "What Drove the U.S. Stock Market in the Last Century?" INSEAD Working Paper.
- Piketty, Thomas, and Emmanuel Saez, 2006, "The Evolution of Top Incomes: A Historical and International Perspective," *American Economic Review*, 96, 2: 200-205.
- Rappaport, Alfred, 1981, "Selecting Strategies that Create Shareholder Value," *Harvard Business Review*, 59, 3: 139-149.
- Rappaport, Alfred, 1983, "Corporate Performance Standards and Shareholder Value," *Journal of Business Strategy*, 3, 4: 28-38.
- Reich, Robert B., 2008, *Supercapitalism: The Transformation of Business, Democracy, and Everyday Life*, Vintage Books.

- Saez, Emmanuel, 2009, "Table and Figures Updated to 2007 in Excel Format," August, available at <http://elsa.berkeley.edu/~saez/>.
- Saez, Emmanuel, and Michael R. Veall, 2005, "The Evolution of High Incomes in Northern America: Lessons from Canadian Evidence," *American Economic Review*, 95, 3: 835-849.
- US Congress, 2008, "Democrats tell big oil: Spend more on production and renewable energy, less on stock buybacks before making demands for new drilling leases," *US Congressional Documents and Publications*, July 31, at <http://menendez.senate.gov/newsroom/record.cfm?id=301639>.
- US Congress, 2010, *Economic Report of the President*, US Government Printing Office.
- Vermaelen, Theo, 2005. *Share Repurchases: Foundations and Trends in Finance*, Now Publishers: Hanover, MA.
- Warren, Elizabeth, 2009, "America without a middle class," *The Huffington Post*, December 3, at http://www.huffingtonpost.com/elizabeth-warren/america-without-a-middle_b_377829.html.