

The Innovative Enterprise and the Developmental State: Toward an Economics of “Organizational Success”

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1. Investment in Innovation

Investment in productive capabilities provides the foundation for economic growth. We live in an economic world of constant innovation, characterized by new technologies, new markets, and new competitors. As Joseph Schumpeter understood in The Theory of Economic Development, first published a century ago, investments in productive resources that can result in real per capita productivity growth must be investments in *superior* productive capabilities that can generate new products using new processes (Schumpeter 1934). They must be investments in innovation

The basic argument of this paper is that investment in innovation is an organizational process. Investors in innovation may be households, governments, or businesses. These three types of social actors often collaborate in developing and utilizing productive resources to generate productivity growth.

Investment in innovation is *not* a market process; it is not the response of producers to price signals that represent a demand for innovative capital products and consumer products. The market cannot demand products that do not yet exist. Developed markets in products, labor and capital are *outcomes*, not sources, of investment in innovative organizations (see Lazonick 2003). Moreover, for the sake of continued innovation, the organizations on which the economy depends for investments in real per capita productivity growth need to regulate these developed markets. In the absence of regulation, developed markets will tend to disrupt and undermine the organizational processes that generate innovation.

Conventional economists assume that an advanced economy is a market economy in which millions of individual decisions concerning the allocation of the economy's resources are aggregated into prices for inputs to and outputs from production processes. Any impediments to this process of market aggregation are deemed to be "market imperfections", and any undesirable social outcomes from the process are deemed to be "market failures".

Markets *are* of utmost importance to our economy and society; they can allow us *as individuals* to choose the work we do, for whom we work, where we live, and what we consume. Insofar as we have market choices, however, it is because the economy is wealthy. If market processes cannot explain investment in innovation, then the "best of all possible worlds" cannot explain the wealth of nations. If we, as economists, want to devise public policies to shape the processes and influence the outcomes of investment in innovation, we need to construct an economic theory of "organizational success".

How, then, do households, governments, and businesses make investments in innovation? Households are organizations that breed future workers, most of whom will eventually look to businesses and governments for employment. If a household puts a worker on the labor market too early, i.e., with a low level of education, the worker will tend to lack productive capabilities and be disadvantaged economically. Governments support the development of the future labor force in a wide variety of ways, first and foremost through investments in and subsidies to the public education system. Governments also

use taxpayers' money to employ a portion of the existing labor force to create new knowledge that may be essential to economic growth. These government investments in a society's knowledge base are the essence of what can be termed "the developmental state".

Investments by households and governments develop productive resources, but advanced economies look to businesses to ensure the utilization of these resources. Most households rely on businesses for their incomes, while governments derive their revenues from taxation of household incomes and property as well as business profits and sales. Businesses are organizations that both employ the labor force that households and governments have developed and make use of the knowledge base that government and household investment has generated.

A business enterprise further trains, formally and on-the-job, many of the workers whom it has hired. In combination with investments in physical capital ("plant and equipment"), the innovative business enterprise integrates the skills and efforts of the labor force to engage in processes of organizational learning that seek to transform the productive capabilities available to it and access new markets on which it can sell its goods and services. It is investments in human capital by households, governments, and businesses that form the foundation for productivity growth that can result in higher standards of living.

In this essay, I provide a framework for analyzing the roles of "the innovative enterprise" and "the developmental state" in the organization, operation, and performance of an advanced economy, with specific reference to that of the United States. I argue that an analysis of the complementary roles of the innovative enterprise and the developmental state in generating economic growth is critical to a theory of how the economy operates and performs. It is organizations, not markets, that generate real per capita productivity growth. *New economic thinking on the operation and performance of the economy requires a theory of "organizational success"*. I conclude this paper with some policy implications of an economic theory of organizational success for dealing with inequity, instability, and the lack of innovation in the current US economy.

2. The 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. These explanations must focus on three generic activities in which the business enterprise engages: strategy, organization, and finance. *Strategy* allocates resources to investments in human and physical capabilities with the expectation that these investments will enable the firm to compete for particular product markets. *Organization* transforms technologies and accesses markets, and thereby develops and utilizes the value-creating capabilities of these resources to generate products that buyers want at prices that they are willing to pay. *Finance* sustains the process of developing technologies and accessing markets 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. Combined, particular types of strategy, organization, and finance constitute a “business model”.

Elsewhere I have contrasted the theory of the innovating firm that transforms technology and accesses markets in the quest to generate higher quality, lower cost products, with the neoclassical theory of the optimizing firm that seeks to maximize profits taking technology and markets as exogenously determined constraints (Lazonick 1991, 1993, 2005, 2010b; see also O’Sullivan 2000b). I have shown how the innovating firm can outperform the optimizing firm, and hence why an understanding of “organizational success” at the level of the firm is essential for understanding how the economy operates and performs. I identify three “social conditions of innovative enterprise” related to strategy, organization, and finance that enable a business to generate higher quality products at lower unit costs than those that had previously been available.

The social condition that can transform strategy into innovation is *strategic control*: a set of relations that 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 over which they preside in attaining and sustaining its competitive advantage.

The social condition that can transform organization into innovation is *organizational integration*: a set of relations that creates incentives for people to apply their skills and efforts to strategic objectives. The need for organizational integration derives from the developmental complexity of the innovation process – that is, the need for organizational learning – combined with the imperative to secure high levels of utilization of innovative investments if the high fixed costs of these developmental investments are to be transformed into low unit costs. 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 also be part of a reward system that manages the learning processes that are the essence of innovation; the compensation system must motivate employees as individuals to engage in collective learning. This collective learning, moreover, cumulates over time, thus necessitating the sustained commitment of financial resources to keep the learning organization intact.

The social condition that can transform finance into innovation is *financial commitment*: a set of relations that ensures the allocation of funds to sustain the cumulative innovation process until it generates financial returns. What is often called “patient” capital enables the capabilities that derive from collective learning to cumulate over time, notwithstanding the inherent uncertainty that the innovation process entails. Strategic control over internal revenues is a critical form of financial commitment, but such “inside

capital” must often be supplemented by external sources of finance such as stock issues, bond issues, or bank debt that, in different times and places, may be more or less committed to sustaining the innovation process.

The “social conditions of innovative enterprise” perspective asks how and under what conditions the exercise of strategic control ensures that the enterprise seeks to grow using the collective processes and along the cumulative paths that are the foundations of its distinctive competitive success.¹ 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.

At any point in time a firm’s functional and hierarchical division of labor defines its 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 what types of employees (e.g., white-collar versus blue-collar) are integrated into the organizational learning processes and 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 for 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.

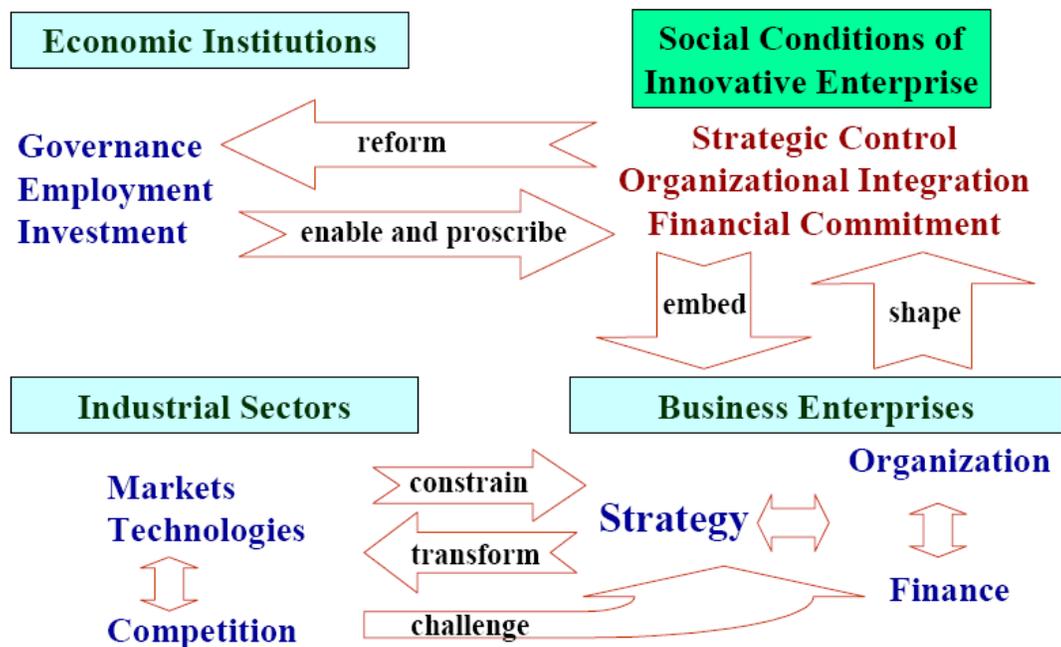
In cross-national comparative perspective, the skill base that enterprises employ to transform technologies and access markets can vary markedly even in the same industrial activity during the same historical era, with different competitive outcomes. Precisely because innovative enterprise depends on social conditions, the development and utilization of skill bases that occur in one institutional environment may not prevail in another institutional environment. Moreover, even within the same industry and same nation, dynamic capabilities that yielded innovative outcomes in one historical era may become static capabilities that inhibit innovative responses in a subsequent historical era.

If one accepts that business enterprises are social structures that are in turn embedded in larger (typically national) institutional environments, a theory of innovative enterprise must itself be embedded in a model of the relations among *industrial sectors*, *business enterprises*, and *economic institutions* that can support the processes for transforming technologies and accessing markets to generate higher quality, lower cost products. Figure 1 provides a schematic perspective on the interactions among sectors, enterprises and institutions in shaping the social conditions of innovative enterprise.

¹ See Lazonick 2002a for the relation between the “social conditions” perspective, and the “dynamic capabilities” approach of Teece et al. 1997. See Teece (2009 and 2010) for the subsequent development of the dynamic capabilities perspective.

Innovation differs across industrial sectors (lower-left section of Figure 1) in terms of the technologies that are developed and the markets that are accessed. In the theory of the optimizing firm, business enterprises take technologies and markets as given: they constrain the “strategy” of the business enterprise to be like that of each and every other firm in the industry. In the theory of the innovating firm, in contrast, enterprise strategy transforms technology and accesses markets. In doing so, strategy confronts technological uncertainty – the possibility that an innovative investment strategy will fail to develop higher quality products or processes – and market uncertainty – the possibility that the strategy will fail to access a large enough extent of the market to transform the high fixed costs of developing these products and processes into low unit costs. But, as indicated in the lower part of Figure 1, the innovating firm must also confront competitive uncertainty – the possibility that even if the firm is successful in transforming technology and accessing markets to develop higher quality, lower cost products, competitors will do it better and cheaper.

Figure 1: Social conditions of innovative enterprise



The rise of new competition poses a challenge to the innovating firm. It can seek to make an innovative response by investing in new productive capabilities. Or it can seek to adapt on the basis of the investments that it has already made by, for example, obtaining wage and work concessions from employees, debt relief from creditors, or tax breaks or other subsidies from the state (see Lazonick 1993). An enterprise that chooses the adaptive response in effect shifts from being an innovating to an optimizing firm. How the enterprise responds will depend on not only the abilities and incentives of those who exercise strategic control but also the skills and efforts of workers integrated into its organization and the committed finance that, in the face of competitive challenges, can be mobilized to sustain the innovation process.

In my book, Sustainable Prosperity in the New Economy? Business Organization and High-Tech Employment in the United States, I have applied the social conditions of innovative enterprise framework to explain the changing operation and performance of US high-tech industry in recent decades (Lazonick 2009a). The book focuses on the transition from the “Old Economy business model” (OEBM) to the “New Economy business model” (NEBM) in the information and communication technology (ICT) industries that fueled the growth of the US economy in the 1980s and 1990s around the microelectronics revolution. By the 2000s the transition from OEBM to NEBM, outlined in Table 1 below, had not only transformed strategy, organization, and finance in the ICT industries but also reshaped the dominant business model in the US economy as a whole. In the remainder of this section, I outline the implications of this transformation of the dominant business model from OEBM to NEBM for strategic control, organizational integration, and financial commitment. Then, in the following section of this essay, I summarize the transformation in US governance, employment, and investment institutions that has occurred in line with the transition from OEBM to NEBM as the dominant business model.

Table 1: Old Economy Business Model (OEBM) and New Economy Business Model (NEBM) in the Information and Communication Technology (ICT) Industries

	OEBM	NEBM
Strategy, product	Growth by building on internal capabilities; business expansion into new product markets based on related technologies; geographic expansion to access national product markets.	New firm entry into specialized markets; sale of branded components to system integrators; accumulation of new capabilities by acquiring young technology firms.
Strategy, process	Corporate R&D labs; development and patenting of proprietary technologies; vertical integration of the value chain, at home and abroad.	Cross-licensing of technology based on open systems; vertical specialization of the value chain; outsourcing and offshoring.
Finance	Venture finance from personal savings, family, business associates; NYSE listing; payment of steady dividends; growth finance from retentions leveraged with bond issues.	Organized venture capital; NASDAQ listing; low or no dividends; growth finance from retentions plus stock as an acquisition currency; stock buybacks to support stock price.
Organization	Secure employment: career with one company; salaried and hourly employees; unions; defined-benefit pensions; employer-funded medical insurance in employment and retirement.	Insecure employment: interfirm mobility of labor; broad-based stock options; non-union; defined-contribution pensions; employee bears greater burden of medical insurance.

Source: Lazonick 2009a, 17.

Strategic control:

A key characteristic of OEBM was the separation of legal ownership of tangible corporate assets from managerial control over the allocation of corporate resources. The means of separating ownership from control was the widespread distribution of public shareholding, a process that occurred in US industry during the first three decades of the twentieth century. Strategic control over the allocation of corporate resources was left in the hands of university-educated professional managers, most of whom had spent their careers moving around and up the corporation organization. In The Visible Hand, Alfred Chandler (1977) documented the “managerial revolution in American business” that took place from the 1890s through the 1910s, providing historical substance to the 1932 classic, The Modern Corporation and Private Property, by Adolf Berle and Gardiner Means. On the basis of what Chandler (1962) called the multidivisional structure, from the 1920s top corporate executives used their deep knowledge of the industries in which their companies operated to invest corporate resources in new lines of business that built on a company’s existing technological and market competences.

The ostensible strength of the business corporation based on the multidivisional structure was the leveraging of existing productive capabilities to move into technologically related markets on an international scale. With the conglomerate movement of the 1960s, however, many business enterprises engaged in large-scale *unrelated* diversification. Promulgating the view of management that General Electric’s top executives espoused in the 1950s (O’Sullivan 2000a, 118-121), US business schools taught that a good manager could manage anything, while many industrial-organization economists argued that conglomerates enabled efficiencies in the allocation of capital and the utilization of managerial capabilities (see Hurley 2006). Catering to a speculative stock market, however, conglomeration often became simply a method of boosting earnings-per-share (EPS) of the company as a whole by using debt issues to finance the acquisition of companies with lower price:earnings ratios. While it should have been clear to stock-market investors that such short-term financial manipulation undermined the financial conditions for sustaining higher levels of EPS over the long term, the interest of stock-market speculators was (as it always is) to capitalize on short-term changes in the market’s evaluation of corporate shares.²

Deconglomeration of the 1970s and 1980s revealed the weakness of the conglomerate as a productive business model. Even in conglomerates in which acquisitions were not driven primarily by financial motives, strategic decision-makers, isolated at the top in the conglomerate headquarters, tended to be ignorant of the types of resource allocation required for investments in innovation in the company’s many different lines of business. By the early 1970s the downgraded debt of conglomerates, known as “fallen angels”, created the opportunity for a young bond trader, Michael Milken, at the investment banking firm of Drexel Burnham, to create a liquid market in high-yield “junk bonds”. By the late 1970s companies were issuing junk bonds directly, often to do management buyouts as the “deconglomeration” movement saw oversized companies divesting unprofitable divisions to transform them, once again, into autonomous firms run by

² See the various articles on conglomeration in St. John’s Law Review, 44, 1969-1970.

executives who understood the investment requirements of the businesses that they were managing. By the mid-1980s, however, Milken (who eventually went to jail for securities fraud) was using his network of financial institutions to back corporate raiders in junk-bond financed leveraged buyouts with the purpose of extracting as much money as possible from a company once it was taken over through layoffs of workers and by breaking up the company to sell it off in pieces (Bruck 1989).

Meanwhile, the United States was confronted by a formidable competitive challenge from Japanese companies in a number of industries – automobiles, consumer electronics, machine tools, steel, and microelectronics – in which US companies were world leaders. The particular impacts of Japanese competition varied markedly across US industries. It virtually wiped out the US-based consumer electronics industry. For example, in 1981 RCA was the one of the leading consumer electronics companies in the world, and the 44th largest US industrial company by revenues with employment of 119,000. By 1986 it had been taken over by General Electric and sold off in pieces (Chandler 2001, chs. 2 and 3). During the 1980s US automobile manufacturers attempted to learn from the Japanese, but in the 2000s the US companies were still producing lower quality, higher cost cars, and, not surprisingly, had lost significant market share (Platzer and Harrison 2009). In the machine tool industry, the overwhelming success of the Japanese against the major US companies was followed from the 1990s by the emergence of export-oriented small- and medium-sized enterprises producing for specialized niche markets (Kalafsky and MacPherson 2002). In the steel industry, the innovative response of the United States was the emergence of independent minimills, using electric arc furnaces and scrap metal. In the 1980s the minimills only had the technological capability to manufacture long products (e.g., bars), but, led by Nucor, the introduction of compact strip production technology from 1989 enabled the minimills to compete with integrated mills in flat products (e.g., sheets) as well (Giarratani et al. 2007).

The most critical, but ultimately successful, US response to Japanese competition was in the semiconductor industry. By the middle of the 1980s, the Japanese had used their integrated skill bases to lower defects and raise yields in the production of memory chips, forcing major US semiconductor companies to retreat from this segment of the market (Okimoto and Nishi 1994). Intel, a leading innovator in the US semiconductor industry, averted bankruptcy by shifting from memories to microprocessors, a business in which the company had been engaged since the early 1970s (Burgelman 1994). Led by the Intel microprocessor for the IBM PC and its clones, US companies became world leaders in microcomputers and chip design. Indeed, the IBM PC and its “Wintel” architecture laid the basis for the rise of NEBM, which by the 2000s had relegated OEBM to history in the ICT industries (Borras and Zysman 1997; Lazonick 2009a and 2009b).

With engineers and scientists as entrepreneurs and many electronics industry veterans as venture capitalists, strategic decision-makers in NEBM startups possessed an intimate understanding of the technologies and markets in which their companies were competing. When combined with the high fixed costs of developing and utilizing many key technologies, the Wintel architecture led New Economy companies to focus their activities on specialized layers of the ICT industries (Lazonick 2009a, ch.2). Within this organizational structure, however, the strategic focus was much more on Development

than on Research. As Gordon Moore (1996, 171), the co-founder of Intel, put it from the perspective of the 1990s:

Running with the ideas that big companies can only lope along with has come to be the acknowledged role of the spin-off, or start-up. Note, however, that it is important to distinguish here between exploitation and creation. It is often said that start-ups are better at creating new things. They are not; they are better at *exploiting* them. Successful start-ups almost always begin with an idea that has ripened in the research organization of a large company. Lose the large companies, or research organizations of large companies, and start-ups disappear.

Yet, the rise of NEBM saw the demise of the corporate research labs that had been a characteristic feature of leading technology companies under OEBM (Rosenbloom and Spencer 1996). In the 1990s, for example, IBM became the world's leading patenter even as it cut R&D expenditures as a percent of sales and laid off thousands of experienced researchers (Lazonick 2009a, ch. 3). In the NEBM open-systems technology environment that IBM had been central in creating with the development of the PC, the purpose of patenting was cross-licensing and collaboration rather than control of proprietary technology as had been the case under OEBM (Grindley and Teece 1997).

Besides shifting corporate strategy away from investments in basic research, the rise of NEBM also shifted corporate strategy toward a focus on stock-price performance, in large part because of the more widespread use of stock options as a mode of employee compensation than had previously been the case. In the 1950s, under OEBM, stock options had become an important component of top executive pay after the Revenue Act of 1950 allowed the gains from exercising "qualified" stock options to be taxed at the capital-gains tax rate of 25 percent rather than at the personal-income tax rate which for income in the highest tax bracket was over 90 percent. To gain this tax advantage, however, stock purchased by exercising an option could not be sold for at least six months from the exercise date, thus preventing an executive from benefiting from short swings in the company's stock price.

From the late 1950s there was a Congressional backlash against this tax dodge, led by Democratic Senator Albert Gore of Tennessee (see Gore 1965). The Revenue Act of 1964 required stock acquired by exercising a qualified stock option to be held three years from the exercise date to be eligible for capital-gains tax treatment. Over the next decade, changes in relative tax rates served to erode the special tax privilege of the qualified stock-option gains of corporate executives. Congress lowered the personal-income tax rate on income over \$200,000 to 70 percent in 1965, and progressively raised the capital-gains tax rate to a high of 39.9 percent in 1976, thus vastly reducing, but not eliminating, the tax advantage of qualified stock options. The Tax Reform Act of 1969 included the introduction of the Alternative Minimum Tax that meant that some executives would have to pay higher effective tax rates on their stock-option income even when it was eligible for the capital-gains tax rate. Then the Tax Reform Act of 1976 completely eliminated the capital-gains treatment of income from executive stock options (Lazonick 2010c). In 1978 Graef Crystal (1978, 145), who would later become a leading critic of excessive executive pay (Crystal 1991), wrote that qualified stock options, "once the

most popular of all executive compensation devices...have been given the last rites by Congress.”

But as these words were written employee stock options were making a comeback, now being pushed by both the National Venture Capital Association and the American Electronics Association, increasingly powerful trade groups that emanated from Silicon Valley. These associations also lobbied for a lowering of both personal-income and capital-gains tax rates, arguing that the high tax rates were disincentives to innovative young companies and their personnel. The Economic Recovery Act of 1981 lowered the top personal-income tax bracket to 50 percent and the capital-gains tax rate to 23.9 percent.

With the 1981 Act, Congress restored the qualified stock option that was subject to capital-gains tax treatment, now called the “incentive stock option”, with a number of restrictions. When exercised, the acquired stock had to be held for at least two years after the grant date and one year after the exercise date. Congress decreed, moreover, that the value of the exercisable grant (that is, the number of shares in the grant times the exercise price) be no more than \$100,000 in a given year (Ellig 2006, 58) – a negligible amount for those at the top of the corporation as executive pay soared in the 1980s and beyond.

As a result of these restrictions, qualified/incentive stock options would be unimportant for executive pay. Henceforth, however, *non-qualified stock options, taxed at the personal-income tax rate as of the date of exercise*, would become the prime component in exploding executive pay. According to Forbes annual surveys, the average remuneration in 1991 dollars of the top 100 highest paid CEOs of US-based companies rose from \$0.4 million in 1970 to \$1.8 million in 1979 to \$5.9 million in 1987 to \$8.1 million in 1991 (Saez 2010). Between 1980 and 1994 the mean value of stock-option grants to CEOs of large US corporations rose from \$155,037 to \$1,213,180, or by 683 percent, while the mean value of their salary and bonus compensation rose from \$654,935 to \$1,292,290 million, or by 95 percent. As a result, stock options accounted for 19 percent of CEO compensation in 1980 but 48 percent in 1994 (Hall and Leibman 1998, 661).

In response to this explosion of executive pay, in 1991 compensation consultant Crystal published a book, In Search of Excess: The Overcompensation of American Executives, in which he calculated that over the course of the 1970s and 1980s the real after-tax earnings of the average manufacturing worker had declined by about 13 percent while that of the average CEO of a major US corporation had quadrupled (Crystal 1991, 27). His study of the compensation of CEOs of 200 major US corporations showed that in 1991 they averaged \$2.4 million in total pay, even with grossly overpaid executives removed from the database – a pay package that was, Crystal (1991, 29) noted, “more than seven times higher than a major Japanese company pays its CEO.”

Yet the explosion of US top executive pay that Crystal observed in the 1970s and 1980s pales in comparison to the volcanic eruption that would occur in the 1990s and 2000s. According to AFL-CIO Executive Paywatch (2012), 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 343:1 in 2010. Most recently, in 2011, this ratio was 380:1. As shown in Table 2, the average annual real compensation in 2010 dollars of the 100 highest paid corporate executives named in company proxy statements was \$20.9 million in 1992-1995, \$78.0 million in 1998-2001, and \$65.3 million in 2004-2007. In the mid-2000s, therefore, top executive pay was triple in real terms the levels that Crystal and others found grossly excessive in the early 1990s. While the stock-market plunge in 2009 caused significant reductions in top executive pay, it was still higher in 2009 in real terms than it had been in the early 1990s.

Table 2. Average total compensation of “named” executives of US corporations and the proportion of total compensation from stock-option gains for the 100, 500, 1500, and 3000 highest paid, 1992-2010

Mean compensation in millions of 2010 US dollars

	Top 100		Top 500		Top 1500		Top 3000		S&P 500 Index	NAS-DAQ Index	NAS-DAQ/S&P
	Mean \$m.	% SO									
1992	23.1	71	9.3	59	4.7	48	2.9	42	100	100	1.00
1993	21.1	63	9.1	51	4.8	42	3.1	36	109	119	1.10
1994	18.5	57	8.1	45	4.4	35	2.9	29	111	125	1.13
1995	21.0	59	9.7	48	5.3	40	3.5	34	131	155	1.18
1996	32.4	64	13.9	54	7.2	47	4.6	41	162	195	1.20
1997	44.2	72	18.6	61	9.5	55	5.9	49	210	243	1.16
1998	76.0	66	26.7	64	12.5	58	7.5	53	261	300	1.15
1999	68.9	82	27.4	71	13.2	63	7.8	57	319	462	1.45
2000	104.0	87	40.5	80	18.7	72	10.8	67	341	614	1.80
2001	62.9	77	23.9	66	11.5	58	6.9	53	284	332	1.17
2002	38.1	57	17.1	49	8.8	43	5.5	38	237	252	1.06
2003	48.7	64	21.2	55	10.8	48	6.7	44	232	275	1.18
2004	55.4	75	25.0	62	12.9	55	8.1	50	272	330	1.21
2005	67.5	78	28.7	63	14.5	56	9.0	51	290	348	1.20
2006	68.9	69	29.6	59	15.4	52	9.7	47	316	463	1.47
2007	69.3	73	30.2	60	15.8	52	10.0	47	354	428	1.21
2008	47.5	58	20.7	55	10.9	45	7.0	39	291	356	1.22
2009	30.4	52	14.8	37	8.3	28	5.5	23	227	307	1.35
2010	35.9	49	18.3	40	10.4	32	6.8	28	271	386	1.43

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

“Named” executives are the CEO and other four highest-paid executives in a given year reported by listed companies in their annual proxy statements to shareholders.

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).

Note in Table 2 how the average pay of the highest paid corporate executives has risen and fallen with the fluctuations of major stock market indices. In the 1980s and 1990s, as shown in Table 3, high real stock yields characterized the US corporate economy. These high yields came mainly from stock-price appreciation as distinct from dividend yields, which were low in the 1990s despite high dividend payout ratios. 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 – a question that I will take up later in this paper.

Table 3: 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.

Organizational integration:

At the end of the 1950s, when in historical retrospect the multidivisional structure had reached its peak, Edith Penrose (1959) captured the organizational essence of the managerial revolution in The Theory of the Growth of the Firm (see Lazonick 2002b). Penrose conceptualized the modern corporate enterprise as an organization that administers a collection of human and physical resources. People contribute labor services to the firm, not merely as individuals, but as members of teams who engage in learning about how to make best use of the firm's productive resources – including their own. This learning is organizational; it cannot be done all alone, and hence is collective, and it cannot be done all at once, and hence is cumulative (see Best 1990, 125).

At any point in time, this organizational learning endows the firm with experience that gives it productive opportunities unavailable to other firms, even in the same industry, that have not accumulated the same experience. The accumulation of innovative experience enables the firm to overcome the “managerial limit” that in the neoclassical theory of the optimizing firm causes the onset of increasing costs and constrains the growth of the firm. The innovating firm can transfer and reshape its existing productive resources to take advantage of new market opportunities. Each move into a new product market enables the firm to utilize unused productive services accumulated through the process of organizational learning. These unused productive services can provide a foundation for the growth of the firm, through both in-house complementary investments in new product development and the acquisition of other firms that have already developed complementary productive resources.

Under OEBM both salaried employees (“white-collar workers”) and hourly employees (“blue-collar workers”) had realistic expectations of employment with one company over the course of their careers. Nevertheless these two segments of the corporate labor force were integrated into these business organizations in two very different ways. Corporations trained salaried personnel to develop as well as utilize technologies, integrating them into organizational learning processes. Having trained these personnel, they sought to retain them through promotion up the managerial hierarchy with a back-loaded, non-portable, defined-benefit pension awaiting them on retirement. Corporations generally excluded hourly personnel – and in particular “semi-skilled” shop-floor workers – from participation in these processes of organizational learning. Nevertheless unionized blue-collar workers also had the expectation of long-term employment with the company by virtue of the seniority provisions of collective bargaining agreements that provided workers with more years with the company with protection from layoffs. In return, these shop-floor workers were expected to cooperate in the high-speed utilization of costly mass-production technologies, an exchange that became problematic in the late 1960s when the “alienated” shop-floor worker, relegated to repetitive assembly-line labor, became seen as a productivity problem in US mass-production industries (Lazonick 1990, chs. 9-10).

When from the last half of the 1970s US mass-producers were confronted by Japanese competition, the exclusion of shop-floor workers from the processes of organizational learning proved to be the Achilles’ heel of US manufacturing. The critical source of Japan’s competitive advantage over the United States was the integration of shop-floor workers into the company’s organizational learning processes. In effect, by extending learning from the managerial structure down to the shop floor, the Japanese perfected the US Old Economy business model (Lazonick 1998 and 2010a). Complementing the hierarchical integration of shop-floor workers, the collaboration of Japanese technical specialists in solving productivity problems in shop-floor manufacturing encouraged the functional integration of their skills and efforts, again in contrast to a relatively high degree of functional segmentation of technical specialists in the United States.

The adverse impact of Japanese competition on US employment became particularly harsh in the double-dip recession of 1980-1982 when large numbers of good blue-collar jobs disappeared, as it turned out permanently, from US industry (Bednarzik 1983). Previously, in a more stable competitive environment, US manufacturing companies would lay off workers with the least seniority in a downturn and re-employ them when economic conditions improved. Now companies were much more likely to shutter whole plants (Harris 1984; Hamermesh 1989). From 1980 to 1985, employment in the US economy increased from 104.5 million to 107.2 million, or by 2.6 percent. But employment of operators, fabricators, and laborers fell from 20.0 million to 16.8 million, a decline of 15.9 percent (US Department of Commerce 1983, 416; and 1986, 386). As Daniel Hamermesh (1989, 53) summed it up: “Each year during the eighties, plant closings in the U.S. displaced roughly one-half million workers with three-plus years on the job.”

Meanwhile, the 1980s saw the rise of NEBM, with greatly expanded employment opportunities for university-educated members of the labor force. In particular, the

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

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

So that stock options would perform a retention function as well as an attraction function, the practice evolved in New Economy firms of making option grants annually, with the vesting period for any annual block of option grants being 25 percent of the grants at the end of each of the first four years after the grant date. Once the options are vested, they can typically be exercised for a period of 10 years from the grant date, so long as one remains with the company. Without creating the Old Economy expectation among employees of lifelong careers with the company, the perpetual pipeline of unvested options functions as a tangible retention mechanism. Indeed, for most employees, the amount of options that an individual can expect to receive is tied to his or her position in the firm's hierarchical and functional division of labor, so that the retention function of stock options is integrally related to the employee's career progress within the particular company. At the same time, under NEBM there is no expectation as there was under OEBM of a career with one company (Lazonick 2009a, chs. 2 and 4).

An Old Economy company valued career employees because they had experience in the development and utilization of the company's proprietary technologies. At many of the leading companies, the corporate R&D lab was the leading source of this intellectual property. Investment in new products and processes was often done on military contracts, with the adaptation of the technologies to commercial production as process technologies improved and potential unit costs declined. The rise of the open-systems technology architecture that was at the heart of the PC revolution of the 1980s and the Internet revolution of the 1990s de-emphasized the role of basic research in the information technology industries. Meanwhile the collapse of the Soviet Union in 1991 led to a

reduction of US military spending, a prime source of funding for corporate high-tech research.

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

Of IBM's losses of \$15.9 billion in 1991-1993 (including an \$8.1 billion deficit in 1993, the largest annual loss in US corporate history at the time), 86 percent came from workforce-related restructuring charges (including the cost of employee separations and relocations) – in effect the cost to the company of ridding itself of its once-hallowed tradition of lifelong employment. Other restructuring charges, mainly for the consolidation of manufacturing capacity and elimination of excess space – both part and parcel of the massive downsizing process – amounted to \$10.6 billion over the three years. Ignoring restructuring charges, IBM recorded positive net incomes before taxes of \$939 million in 1991, \$2,619 million in 1992, and \$148 million in 1993. Although IBM continued to downsize at a torrid pace in 1994, most of it was done outside the United States and without voluntary severance provisions. During 1994 the company booked no restructuring charges and had after-tax profits of \$3,021 million. By that time, lifelong employment at IBM was a thing of the past (Lazonick 2009a, ch. 3).

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

In 1992-1995 the United States had its first of what would be recurring "jobless recoveries". As Lori Kletzer (1998, 117) wrote in a 1998 survey article on "job displacement":

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

In a more recent analysis of changes in job security, Henry Farber (2010, 223) stated that “[t]here is ample evidence that long-term employment [with one company] is on the decline in the United States.” Using Current Population Survey data for 1973–2006, Farber (2010, 230) found that

mean tenure for males employed in the private sector has declined substantially, particularly for older workers. For example, mean tenure for private sector males at age fifty declined from 13.5 years in the 1973 to 1983 period to 11.3 years in the 1996 to 2008 period. The pattern in the public sector is the opposite. For example, mean tenure for public sector males at age fifty increased from 13.6 years in the 1973 to 1983 period to 15.8 years in the 1996 to 2008 period.

Moreover, it appears that education as a guarantor of employment security weakened significantly from the 1980s to the 2000s. Using Displaced Worker Survey data to analyze rates of job loss, Farber (2010, 253) found that

[i]n 1981 to 1983, the private-sector three-year job loss rate was 16 percent for high school graduates and 9.4 percent for college graduates. By 2001 to 2003 (also a period of weak labor markets), the gap had fallen to virtually zero, with a private-sector three-year job loss rate of 10.7 percent for high school graduates and 11 percent for college graduates. Interestingly, the education gap in job loss rates increased in the 2005 to 2007 period with 8.3 and 10.0 percent job loss rates for high school and college graduates, respectively.

In their book on “turbulence” in employment, Brown, Haltiwanger, and Lane (2006, 108) found that during the 1990s the most common career path in semiconductors was the “job switcher” who worked for two different companies, and the most common career path in software was the “job hopper” who worked for more than two companies (Brown et al. 2006, 84–86). For personnel at all levels of education in the semiconductor and software industries, workers who changed jobs more earned less (see also Brown 2005). Based on intensive research on the US semiconductor industry in the 2000s, Brown and Linden (2008, 22) concluded that “[t]he labor market situation is especially difficult for older engineers, who face rapid skill obsolescence....When companies claim they face a shortage of engineers, they usually mean that they face a shortage of young, relatively inexpensive engineers with the latest skills, even when they have a queue of experienced engineers who want retraining.”

By the end of the 1990s the employment relations that had characterized OEBM had been transformed by what I have elsewhere called “rationalization” – the permanent

elimination of well-paid blue-collar jobs through plant closures – and “marketization” -- the erosion of well-paid white-collar jobs through the end of the career-with-one-company norm (Lazonick 2011a). In the 2000s “globalization” – the offshoring of previously well-paid US jobs – joined rationalization and marketization as a source of structural change in the employment opportunities available to members of the US labor force, adversely affecting both college-educated professionals and high-school-educated operatives. Job losses that resulted from rationalization, marketization, and globalization became significant, respectively, in the recessions that marked the beginning of the 1980s, 1990s, and 2000s, and then continued as permanent changes in the structure of employment in the recoveries that followed each recession (see Lazonick 2011a).

In the ICT industries that were central to the growth of the US economy in the 1980s and 1990s, the globalization of employment dated back to the 1960s when US semiconductor manufacturers had set up assembly and testing facilities in East Asia, making use of low-paid but literate female labor (Lazonick 2009a, ch. 5). Over time, a combination of work experience at home with both multinational and indigenous companies as well as the return of nationals who had acquired graduate education and/or work experience abroad enhanced the capabilities of the Asian labor force to engage in higher value-added activities. By the beginning of the 2000s Indians had become world leaders in the offshore provision of IT services while the Chinese had become adept in a wide range of manufacturing industries, especially in ICT. In the 2000s the availability of a capable college-educated labor supply along with enhanced and low-cost communication technology led to a vast acceleration of offshoring by US companies to China and India (Bronfenbrenner and Luce 2004; Bednarzik 2005; Blinder 2007; Hira and Hira 2008; Houseman 2009).

Offshoring depressed US employment in the recession of 2001 and in the subsequent jobless recovery that stretched into 2003. Now well-educated high-tech workers found themselves vulnerable to displacement as US-based companies hired workers abroad (Garner 2004; Jensen and Kletzer 2005). Given huge increases in the issuance of non-immigrant (H-1B and L-1) work visas in the United States in the late 1990s and beginning of the 2000s, there were hundreds of thousands of high-tech workers, especially Indians, who had accumulated US work experience that they could now take back home (Hira 2010). In February 2003, after more than a year of jobless recovery, BusinessWeek (Engardio et al. 2003) gained considerable attention when its cover blared the rhetorical warning: “Is Your Job Next?”. The subtitle read: “A new round of globalization is sending upscale jobs offshore. They include chip design, engineering, basic research – even financial analysis. Can America lose these jobs and still prosper?”

The nations to which these jobs have been offshored have much lower wages than those that prevail in the United States. But, more fundamentally, the flow of high-value-added jobs to China and India reflects the availability in these countries of a well-educated and increasingly experienced labor force, the result of a decades-long process of a) educating the labor force ahead of demand, even when the immediate result was “brain drain”; b) attracting multinational corporations that through foreign direct investment have provided the indigenous educated labor force with high-value-added employment opportunities, thus reducing the need for these workers to go abroad to accumulate the experience

required for a high-tech career; c) national investments in science and technology infrastructures that augment the potential for indigenous industry to absorb and improve upon technologies transferred from abroad; and d) the emergence of indigenous companies that can engage in indigenous innovation and even emerge as global competitors (Lazonick 2009a, ch. 5). In the process, as was the experience of South Korea and Taiwan from the 1980s and as occurred in China and India throughout the 2000s, the upgrading of the productive capabilities of indigenous industry serves to reverse the brain drain, attracting back to the home country highly valuable labor with advanced education, extensive work experience, and deep business connections from years spent studying and working abroad.

Even in the presence of rapidly rising wages and strengthening national currencies, indigenous innovation and the concomitant upgrading of the domestic labor force can enable these developing nations to continue to create job opportunities that displace American workers. The only way to maintain standards of living in the United States in the presence of this innovative international competition is for US households, governments, and businesses to invest in the upgrading of the US labor force – a process that requires “financial commitment”, especially from businesses that must ultimately be not only able but also willing to employ the upgraded labor force.

Financial commitment:

The loss of jobs through rationalization, marketization, and globalization all originated with changes in the innovative capabilities of alternative modes of employment. By integrating shop-floor labor into the processes of organizational learning in mass production manufacturing, Japanese companies outcompeted established US companies. By producing ICT products on the basis of open-systems technologies rather than proprietary technologies, Old Economy companies such as IBM and Hewlett-Packard and New Economy companies such as Intel, Microsoft, and Cisco Systems were able to develop computers into revolutionary networking devices with countless practical applications. By globalizing the high-tech labor force, US corporations were able to contribute to, and benefit from, the development of the productive capabilities of workers in poorer economies that, through indigenous innovation, could transform their standards of living.

Displaced US workers experience rationalization, marketization, and globalization as “market forces” over which they have no control. Yet, the companies for which they had worked have often profited from these changes by closing plants, terminating high-paid employees, and offshoring jobs even when competition has not forced them to do so. My research into the transformation of the financial behavior of US corporations since the 1980s strongly supports the hypothesis that the “financialization” of the US business corporation has exacerbated the adverse impacts of rationalization, marketization, and globalization on employment in the United States. By financialization, I mean the evaluation of the performance of a company by a financial measure such as earnings per share rather than by the goods and services that it produces, the customers it serves, and the people whom it employs.

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

The financialization of corporate resource allocation undermines investment in innovation. The high fixed-cost investments inevitably required to develop technologies and access markets reduce EPS in the short-term. Hence executives who are concerned with meeting EPS targets on a quarterly basis have incentives to avoid investments in innovation. In the process, as we have seen, these executives can personally benefit by exercising stock options at higher market prices.

In the United States the ability of stock-option holders to reap gains from exercising stock options is rarely constrained by criteria that would ensure that these gains reflect the productive performance of the holder's company. Unindexed stock options enable executives to gain from both stock-market speculation and stock-market manipulation. This form of compensation gives executives an interest in touting the prospects of the company to encourage speculation in the company's stock, even when the optimistic projections are not warranted. It also gives executives an interest in allocating resources to repurchasing their own company's shares with the purpose of boosting their company's stock price and hitting quarterly EPS targets. As I have shown, gains from the exercise of stock options represent the most important single component of top executive pay at major US corporations. And since the late 1990s, stock repurchases have become the most important means by which corporations "create value" for shareholders (Lazonick 2009a, ch. 6).

Until the early 1980s established US corporations did not do significant stock buybacks. Rather they relied on dividends to return corporate earnings to shareholders. Yet in the 1980s, even as established corporations began to engage in substantial stock buybacks, they also became more generous with their dividend payouts. For US corporations, 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 unprecedented levels of 74.6 percent in 2007, 83.6 percent in 2008, and 71.7 percent in 2009.³ In the 1960s and 1970s the average annual rate of

³ Corporate dividends rose to \$733 billion in 2010 from \$719 billion in 2009, but with profits up substantially, the dividend payout ratio fell to 45.2 percent in 2010.

increase of dividends was less than that of profits. But in the 1980s dividends paid out by US corporations increased by an annual average of 10.7 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 8.2 percent for profits. In the 2000s the average annual rate of increase of dividends was 8.5 percent as against only 5.1 percent for profits (US Congress 2011, 295).

Yet, even though US business corporations have not skimmed on dividends over the past three decades, by the late 1990s stock repurchases surpassed dividends as a mode of distributing cash to corporate shareholders (Dittmar and Dittmar 2004). Dividends reward shareholders for holding stock, repurchases for selling stock. Hence, as was the case under OEBM for firms listed on the New York Stock Exchange (NYSE), dividends, regularly paid, tend to stabilize a company's stock price. In contrast, the gains that can be reaped as a result of stock repurchases depend on stock-price volatility.

Most New Economy companies are listed on NASDAQ which, with much less stringent listing requirements than NYSE, is a much more speculative stock exchange. In their first decade or two of a company's existence, the New Economy norm has been to forego dividend payments for the sake of reinvesting in the growth of the firm. In the 1980s and early 1990s successful New Economy firms saw their stock price rise mainly because of innovation. In the early 1990s, however, some "older" New Economy companies such as Intel started buying back their stock. Then in the speculative stock-market boom of the late 1990s, when the NASDAQ Composite Index rose by over 200 percent from August 1998 to March 2000, speculation drove up stock prices, without needing help from buybacks. Even then companies whose stock was less subject to speculation would still use buybacks to try to keep up with rising stock prices. After the Internet bust, however, with the NASDAQ Index falling to only 33 percent of its March 2000 level by September 2001, companies that had not seen fit to do significant, if any, buybacks before now went into the stock market as massive repurchasers – that is, manipulators – of their own stock.

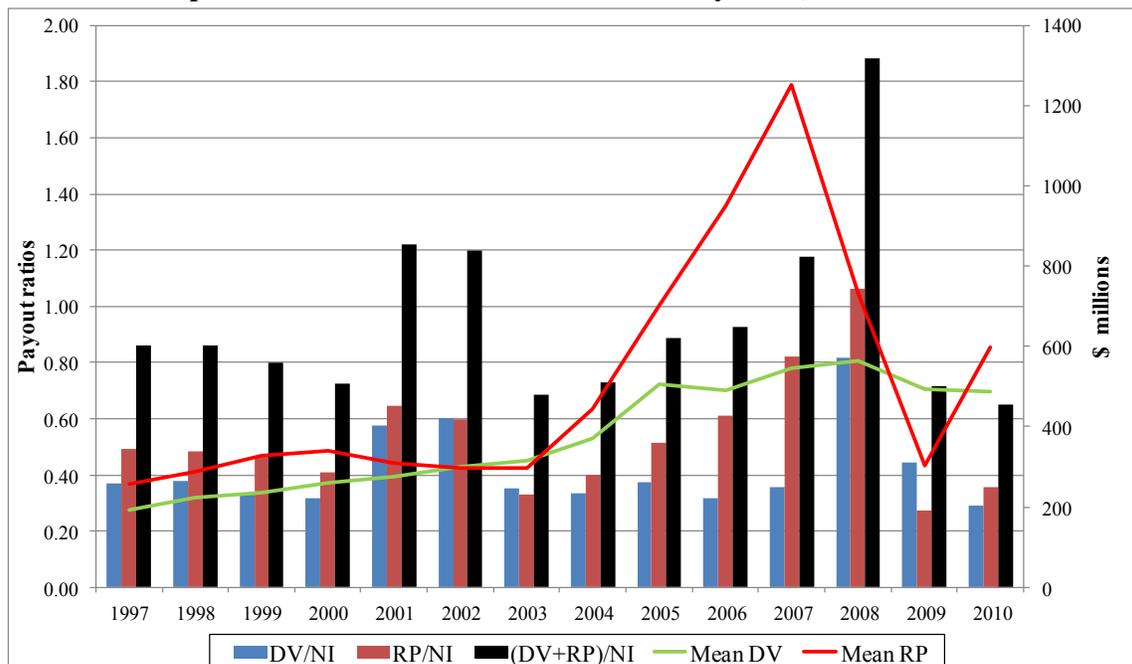
From 2003 through 2007 the stock repurchase became an increasingly important instrument of stock-market manipulation. In the United States, the SEC requires stock repurchase *programs* to be approved by the company's board of directors and to be announced publicly. These programs authorize a company's top executives to do a certain amount of buybacks over a certain period of time, with the timing and amount of the repurchases left to the discretion of the executives. For example, on September 22, 2008 Microsoft (2008) announced that "its board of directors approved a new share repurchase program authorizing up to an additional \$40 billion in share repurchases with an expiration of September 30, 2013." It is then up to the top executives to decide whether the company should actually do repurchases, when they should be done, and how many shares should be repurchased at any given time. Repurchases are almost always done as open-market transactions through the company's broker. The SEC does *not* require a company to announce the buybacks at the time that they are actually done.

Data on 373 companies in the S&P 500 Index in January 2008 that were publicly listed in 1990 show that they expended an annual average of \$106.3 billion (or \$285 million per

company) on stock repurchases in 1995-1999, representing 44 percent of their combined net income. These figures represented a significant increase from \$25.9 billion in repurchases (or \$69 million per company) in 1990-1994, representing 23 percent of their combined net income. Yet in the late 1990s the stage was being set for an even more massive manipulation of the market through stock repurchases, especially from 2003.

Figure 2 shows the payout ratios and mean payout levels for 419 companies included in the S&P 500 Index in January 2011 that were publicly listed from 1997 through 2010. From 1997 through 2010 these 419 companies expended \$2.7 trillion on stock repurchases, an average of \$6.5 billion per company, and distributed a total of \$2.0 trillion in cash dividends, an average of \$4.8 billion per company. Stock repurchases by these 419 companies averaged \$296 million in 2003, rising to an average of \$1,251 million in 2007.

Figure 2: Ratios of cash dividends (DV) and stock repurchases (RP) to net income (NI), and mean dividend payments and stock repurchases among 419 companies in the S&P 500 Index in January 2011, 1997-2010



Data for 419 corporations in the S&P 500 Index in January 2011 that were publicly listed 1997-2010. Data for companies that end their fiscal years during the first six months of the calendar year are attributed to the previous year. RP, stock repurchases; DV, 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, 1997-2010); company 10-K filings for missing or erroneous data from the Compustat database.

In work reported elsewhere, I have examined how buybacks have adversely affected the delivery of higher quality, lower cost products in a range of industries from oil refining to health insurance (Lazonick 2009b; 2010c; Lazonick and Tulum 2011; Lazonick 2012). Some examples:

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- Exxon Mobil, the world's largest petroleum refiner, did \$174.5 billion in buybacks during 2001-2010 – the most of any company – even as there is a need for large-scale investments in energy alternative. Among the top 25 stock repurchasers in 2001-2010 were two other petroleum refiners: Chevron at #21 with \$26.0 billion and ConocoPhillips at #25 with \$22.0 billion.
- Leading ICT companies do massive buybacks even as they shift high-tech jobs from the United States to low-wage countries and pressure the US government to make larger investments in the high-tech knowledge base. In the decade 2001-2010 the top repurchasers among ICT companies were Microsoft \$110.0 billion (#2 among repurchasers), IBM \$89.2 billion (#3), Cisco Systems \$65.0 billion (#4), Hewlett-Packard \$54.0 billion (#6), and Intel \$48.3 billion (#11). The \$367 billion that these five companies spent on buybacks over the decade were \$112 billion more than they spent on R&D.
- Pharmaceutical drug prices are at least double in the United States compared with other countries. The industry, including biopharmaceuticals and medical devices, benefits from US federal government spending on life sciences through the National Institutes of Health (NIH), with total annual budgets averaging \$30.9 billion from 2009 through 2012.⁴ In opposing the regulation of drug prices by the US Congress, the pharmaceutical companies argue that they need high prices to fund their R&D expenditures in the United States. Yet among major pharmaceutical companies, in 1997-2010 Pfizer did repurchases equal to 64 percent of R&D expenditures, Johnson & Johnson 56 percent, and Merck 53 percent. When the substantial dividends that these companies paid are added to their repurchases, shareholder distributions exceeded R&D expenditures over this period by 32 percent at Pfizer, 17 percent at Johnson & Johnson, and 31 percent at Merck. In 2011, along with \$6.2 billion in dividends, Pfizer repurchased \$9.0 billion in stock, equivalent to 90 percent of its net income and 99 percent of its R&D expenditures. Amgen, the largest dedicated biopharmaceutical company, has repurchased stock in every year since 1992, for a total of \$42.2 billion through 2011, including \$8.3 billion in 2011. Since 2002 the cost of Amgen's stock repurchases has surpassed the company's R&D expenditures in every year except 2004, and for the period 1992-2011 was equal to fully 115 percent of R&D outlays and 113 percent of net income.
- Among the top 50 repurchasers in the United States for the period 2001-2010 were three of the largest corporate health insurers: UnitedHealth Group at #20 with \$26.5 billion in buybacks, Wellpoint at #27 with \$21.9 billion, and Aetna at #46 with \$12.0 billion. As a proportion of net income over this period, buybacks represented 88 percent for UnitedHealth Group, 101 percent for Wellpoint, and 102 percent for Aetna. When these health insurers increase their profits by raising premia, excluding people with pre-existing conditions, and capping lifetime benefits, the most likely use of those extra profits is to do more stock buybacks.

⁴ <http://www.nih.gov/about/budget.htm>.

- 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 in 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 2000-2007 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.

3. The Developmental State

What types of national institutions support investment in innovative enterprise and what types undermine it? The answers to these questions derive from the strategic, organizational, and financial characteristics of innovative enterprise outlined in the previous section. If and when innovation is successful in a particular nation over a sustained period of time, the types of strategic control, organizational integration, and financial commitment that characterize the nation's innovating firms will constitute distinctive social conditions of innovative enterprise. Over time, through a nation's political and cultural processes, the social relations that characterize strategic control, organizational integration, and financial commitment in major business enterprises will have a preponderant influence on the rules and norms that characterize *governance*, *employment*, and *investment* institutions (see the upper part of Figure 1). At any point in time these institutions, the rules and norms of which have been inherited from the past, both enable and proscribe the activities of firms, while over time distinctive elements of these institutions become embedded in the ways in which the generality of firms in the nation function.

Governance institutions determine how a society assigns rights and responsibilities to different groups of people over the allocation of its productive resources and how it imposes restrictions on the development and utilization of these resources. *Employment institutions* determine how a society develops the capabilities of its present and future labor forces as well as the level of employment and the conditions of work and remuneration. *Investment institutions* determine the ways in which a society ensures that sufficient financial resources will be available on a continuing basis to sustain the development and utilization of its productive capabilities. In enabling and proscribing the strategic, organizational, and financial activities of business enterprises, these economic institutions influence the characteristics of social relations within any given firm at any

point in time. As business enterprises succeed at innovation, their participants, typically acting through trade associations, may seek to reform these institutions to suit what they perceive to be the new strategic, organizational, and financial needs of their enterprises. Analogously, when participants at major established corporations become more intent on extracting value than creating value – for example, when executives do large-scale stock buybacks – they may engage in collective actions to reshape economic institutions to support these objectives.

This highly schematic perspective, therefore, posits a dynamic historical relation between organizations and institutions in the evolution, and possible dissolution, of the social conditions of innovative enterprise. To go beyond this schema requires the integration of the theory of innovative enterprise with comparative research on the evolution of the social conditions of innovative enterprise in different times and places. To study the innovative enterprise in abstraction from the particular social conditions that enable it to generate higher quality, lower cost products is to forego an understanding of how a firm becomes innovative in the first place, how its innovative capabilities may be rendered obsolete, and how its strategic decision-makers seek to adapt to a new industrial environment. A comparative-historical analysis enables us to learn from the past and provides working hypotheses for ongoing research.⁵

In the previous section of this essay, I outlined the transformations of strategic control, organizational integration, and financial commitment in the transition from OEBM to NEBM since the 1970s. In this section, I summarize the parallel transformations in governance, employment, and investment institutions in the United States over this period.

Governance institutions:

When OEBM was the dominant US business model in the first half of the twentieth century, the ideology of corporate governance resembled what we would now call a stakeholder perspective. In the 1920s the combination of an innovative corporate economy and the consolidation of the managerial revolution led some prominent business representatives to advocate a world of “industrial democracy” in which different stakeholders could share in productivity gains. For example, in 1925 Robert S. Brookings, a businessperson who became the president of Washington University and the founder of the eponymous think tank published a book entitled Industrial Ownership, followed four years later by a collection of essays, Industrial Democracy, in which he argued:

Capital, not labor, should be treated by management as a commodity in industry, to be fairly compensated in order to retain it in industry in competition with other forms of investment. As labor is so largely interested in, and is so largely responsible for industrial results, it should

⁵ For an explication of this integrative methodology, see Lazonick 2002a; for a comparative-historical synthesis of the innovative firm, see Lazonick 2005.

be given the authority of a liberal representation on the board of directors.
(Brookings 1929, x-xi, summarizing ideas in Brookings 1925)

In 1927 Owen D. Young, chairman of General Electric from 1922 to 1939, made a stakeholder argument in a major address at Harvard Business School, published in Harvard Business Review:

We think of managers no longer as the partisan attorneys of either group [capital or labor] against the other. Rather we have come to consider them trustees of the whole undertaking, whose responsibility is to see to it on the one side that the invested capital is safe and that its return is adequate and continuous; and on the other side that competent and conscientious men are found to do the work and that their job is safe and their earnings are adequate and continuous. Managers may not be able to realize that ideal either for capital or labor. It is a great advance, however, for us to have formulated that objective and to be striving toward that goal. Perhaps some day we may be able to organize the human beings engaged in a particular undertaking so that they truly will be the employer buying capital as a commodity in the market at the lowest price. It will be necessary for them to provide an adequate guaranty fund in order to buy their capital at all. If that is realized, the human beings will then be entitled to all the profits over the cost of capital. (Young 1927, 392)

With the rise of industrial unions from the late 1930s the rhetoric from US business leaders became less idealistic. Nevertheless, in the 1950s Ralph Cordiner as president (and future chairman) of GE could tell his company's managers: "Enlightened [i.e., managerial] capitalism recognizes that it has stewardship responsibilities to everyone affected by the business: the share owners, customers, the public, employees, and suppliers. This business venture must be managed in the balanced best interests of all." (quoted in O'Sullivan 2000a, 119).

It was only in the early 1980s that corporate executives began to embrace the ideology that, for the sake of superior economic performance, companies should "maximize shareholder value" (MSV) (Rappaport 1981 and 1983). Among academic economists, agency theorists 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, some three decades later MSV remains the dominant ideology of corporate governance in business schools, economics departments, executive suites, and corporate boardrooms.

The argument put forward by agency theorists is 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.

The fundamental problem with the agency perspective on MSV is that it simply is not the case that shareholders are the only participants in the business enterprise who make investments in productive resources without a guaranteed return (see Lazonick 2010c). Taxpayers through government agencies and workers through the firms that employ them also make such risky investments on a regular basis. From this perspective both the state and labor have “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. Indeed, 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 twentieth century (see Lazonick 2008; Block 2009; Block and Keller 2010). As one prime example, it is impossible to explain US dominance in computers, microelectronics, software, and data communications without recognizing the role of government in making seminal investments that developed new knowledge and infrastructural investments that facilitated the diffusion of that knowledge (see, for example, National Research Council 1999; Abbate 2000). As another prime example, as already mentioned, NIH budgets averaged almost \$31 billion in 2009-2012, almost double in real terms the budget of 1993 and triple in real terms the budget of 1985. Since the founding of the first national institute in 1938 through 2011, NIH spending has totaled \$792 billion in 2011 dollars with another \$31 billion in 2012 (see Lazonick and Tulum 2011).

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

In addition, the US government has often provided cash subsidies to business enterprises to develop new products and processes, or even to start new firms. The public has funded these subsidies through current taxes, borrowing against the future, or by making consumers pay higher product prices for current goods and services than would have

otherwise prevailed. Multitudes of business enterprises have benefited from subsidies without having to enter into contracts with the public bodies that have granted them to remit a guaranteed return from the productive investments that the subsidies help to finance.

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

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

I concur with Blair's argument that workers often have residual-claimant status. From the perspective of innovation theory, however, I look at the relation between the risks that workers bear and rewards that workers may, or may not, receive differently. Quite apart from whether or not their skills are "firm specific", workers often contribute their time and effort over and above the levels required by their current level of pay to a collective and cumulative innovation process. By definition, this innovation process can only generate returns in the future, and, indeed, because the innovation process is uncertain, may not in fact generate returns. As members of the firm, therefore, workers, bear the risk that the extra expenditures of time and effort will not yield the gains from innovative enterprises from which they can be rewarded. If, however, the innovation process does generate returns, workers, as risk-bearers, have a claim to a share.

Therefore MSV ideology, as put forth by agency theorists, provides a flawed rationale for denying taxpayers and workers residual-claimant status, and thereby excluding them from sharing in the gains of innovative enterprise.⁶ But, to turn agency theory on its head, on what grounds do *public shareholders* have residual-claimant status? Put differently, what risk-bearing role do public shareholders play in the innovation process? Do they confront uncertainty by strategically allocating resources to innovative investments? No.

⁶ For the further elaboration of this argument about the relation between those who take the risk in investing in innovation and those who are able to reap the returns, see Lazonick and Mazzucato 2012.

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 that 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 recognized almost 80 years ago in The Modern Corporation and Private Property. As property owners, public shareholders own tradable shares in a company that has invested in productive assets. In an innovative enterprise, however, the most important productive assets are human assets – assets that, in a free society, cannot be owned by others.

Given the central role of the development and utilization of human assets in the growth of the firm, the fundamental role of the stock market in the United States has been to transform illiquid claims into liquid claims on the basis of investments that have already been made, thereby separating 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 absorb 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.

In the 1980s and 1990s agency theorists such as Michael Jensen vigorously and vociferously advised corporate executives to disgorge the so-called “free cash flow” of the companies over which they exercised strategic control and to align their interests with those of public shareholders through stock-based compensation (see especially Jensen 1986; Jensen and Murphy 1990). Through stock repurchases and stock options, that is precisely what has happened over the past two decades or so – with, as I have argued, great damage to the US economy in the process (Lazonick 1992, 2010c, 2011a, 2012). Recall, for example, that in 2007 alone, on the eve of the greatest financial crisis since the Great Depression, S&P 500 companies collectively spent over \$600 billion repurchasing their own shares.

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, a company that does buybacks never sells the shares at higher prices to cash in on these “investments”. If the company were to do so, its executives would be signaling 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 of dollars (see Gimein et al. 2002). Yet, as *corporate decision-makers*, many of these same corporate executives used corporate funds to repurchase their companies’ shares in the attempt to bolster their stock prices – to their own personal gain. Given the fact that in the United States companies are not required to announce the dates on which they actually do open-market repurchases, there is an opportunity for top executives who have this information to engage in insider trading by using this information to time option exercises and stock sales (see Fried 2000 and 2001).

The facility with which US corporations can do large-scale stock repurchases is the result of the relaxation of Securities and Exchange Commission (SEC) rules against stock-price manipulation. Under the Securities Exchange Act of 1934, stock repurchases can be construed as an attempt to manipulate a company’s stock price. In 1982, however, with the promulgation of Rule 10b-18, the SEC provided companies with a “safe harbor” that manipulation charges would not be filed if each day’s open-market repurchases were not greater than 25 percent of the stock’s average daily trading volume and if the company refrained from doing buybacks at the beginning and end of the trading day.⁷

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

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

⁷ In 2003 the SEC amended Rule 10b-18 “to simplify and update the safe harbor provisions in light of market developments since the Rule’s adoption.” The amendments also required that in their 10-Q filings with the SEC companies report the number and value of shares repurchased in the previous quarter and the average price paid per share. See <http://www.sec.gov/rules/final/33-8335.htm>.

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

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

These abuses aside, however, the more fundamental problem with US-style stock options is that they are unindexed; that is, they virtually never carry any performance criteria that would limit the gains from exercising stock options to an amount warranted by superior productive performance (Bebchuk and Fried 2004). As a result, an executive, or any other employee with stock options, can gain from a speculative stock market as distinct from an improvement in the company's productive performance. In addition, as we have seen, executives can augment their stock-option gains by allocating corporate resources to do buybacks, the 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 amount of stock-based remuneration that executives secure is equitable relative to other contributors to the innovation process. Be that as it may, I argue that in the last half of the 1990s it was stock-market speculation and in the 2000s stock-market manipulation that were the main drivers of the explosion in the pay of US corporate executives.

In the process, US corporate executives became more concerned with extracting value from their corporations than with creating value for the various stakeholders on whom the sustained prosperity of the corporation and the economy depend. In the wake of the financial meltdown of 2008, a prominent corporate insider emerged as a critic of MSV. General Electric's former CEO Jack Welch told a Financial Times reporter (Guerrera 2009): "On the face of it, shareholder value is the dumbest idea in the world. Shareholder value is a result, not a strategy...your main constituencies are your employees, your customers and your products." Perhaps in response to a look of astonishment on the face of the interviewer, Welch went on to reiterate: "It is a dumb idea. The idea that shareholder value is a strategy is insane. It is the product of your combined efforts – from the management to the employees."

Jack Welch is right; MSV is a dumb idea. But this dumb idea has completely dominated US corporate governance for the last quarter century not only in theory but also, much worse, in practice. And despite the damage that it has done to the US economy, that dumb idea remains an ideology of the mode of corporate governance that can achieve superior economic performance in which most business executives, government policy-makers, and academic economists fervently believe.

Employment institutions:

World War II pulled the United States out of the Great Depression, and in the aftermath of the war the US Congress pledged, through the Full Employment Act of 1946, to pursue policies to sustain a high level of employment of the labor force. This objective was largely achieved in the 1950s and 1960s with the aid of high levels of military spending, justified by the Cold War. As in the case of the Federal-Aid Highway Act of 1956 that built the US interstate highway system, some government investments that were justified as defense spending were actually for non-military purposes.

But however important the role of the federal government was in supporting a high level of employment, the ability to do so depended on the employment policies of the nation's business corporations. Within the United States industrial power was, as it remains, concentrated in a relatively small number of large corporations. In 1959 44 of the world's 50 largest corporations in terms of revenues were US-based, with the remaining six headquartered in Europe. In that year, within the United States, corporations represented 9.6 percent of all business enterprises, but 79.3 percent of all business revenues. Corporations with assets of \$100 million or more accounted for one-tenth of one percent of all corporations, but 55.4 percent of all corporate assets, 54.5 percent of before-tax corporate profits, and 67.9 percent of all corporate dividends (US Bureau of the Census 1976: Series V, 182-96; Kaysen 1996, 25).

In the US economy in the decades after World War II and into the 1980s, OEBM offered employment that was far more stable and earnings that were far more equitable than would be the case in the subsequent NEBM era. The sociological foundation of OEBM was "the organization man." Popularized in the United States in the 1950s (Whyte 1956), the stereotypical organization man was a white, Anglo-Saxon, Protestant male who had obtained a college education right after high school, secured a well-paying job with an established company early in his career, and then worked his way around and up the corporate hierarchy over three or four decades of employment, with a substantial defined-benefit pension, complemented by highly subsidized medical coverage, awaiting him on retirement. The employment stability offered by an established corporation was highly valued, while interfirm labor mobility was shunned.

By the 1950s and 1960s, moreover, even unionized production workers, ostensibly paid on an hourly rather than salaried basis, found that collective bargaining protected their positions of seniority, so that they too experienced, and in a growing economy came to expect, lifetime employment as well as defined-benefit pensions and comprehensive health benefits, just like the salaried managers of the companies for which they worked. When layoffs occurred, they tended to be temporary and, in unionized workplaces, on a

last-hired, first-fired basis. Supported by a highly progressive income tax system, countercyclical government economic policy sought to reduce the severity of business fluctuations, while government spending, particularly on higher education, advanced technology and physical infrastructure, complemented the employment opportunities provided by the business sector. The result was relatively equitable and stable economic growth from the late 1940s to the beginning of the 1970s (Lazonick 2009a, chapters 1 and 3).

The failure of business organizations to permit blacks and women to share in this progress meant that their inclusion had to be achieved by political means; in this case the Civil Rights Act of 1964 and Equal Employment Opportunity Act of 1972. In unionized corporations, the attempt to resolve the legacy of inherited inequality in corporate employment clashed with the principle of seniority in promotion and layoffs, a sacred institution of the US labor movement. Much of the gains that blacks made in moving into unionized blue-collar jobs in the 1970s were wiped out by the rationalization movement of the 1980s, as they were overrepresented in the Old Economy manufacturing sectors such as steel, autos, and consumer electronics that were in decline and underrepresented in the New Economy sectors related to the microelectronics revolution that were on the rise. Besides losing jobs when plants were closed, many blacks had recently moved into unionized jobs so that when some workers in an establishment were laid off, blacks tended to be last hired and hence first fired (Kletzer 1991; Sharpe 1993; Fairlie and Kletzer 1998). As William Julius Wilson (1996-1997) argued, the disappearance of these jobs had devastating impacts on the abilities and incentives of blacks to accumulate the education and experience required to position themselves for well-paid and stable employment opportunities.

Over the course of the 1980s the stock market came to react favorably to permanent downsizings of the blue-collar labor force (Abowd et al. 1990; Palmon et al. 1997). While, in principle, terminations could represent the initial stage of restructuring that could enhance the long-run competitiveness of a company, in what became known as the “deal decade” of the 1980s (Blair 1993) downsizing was often the result of attempts by corporate executives and corporate raiders to “maximize shareholder value” (Lazonick 2004). As secure middle-class jobs for high-school-educated blue-collar workers permanently disappeared, there was no commitment on the part of those who managed US industrial corporations or the Republican Administrations that ruled in the 1980s to invest in the new capabilities and opportunities required to upgrade the quality and expand the quantity of well-paid employment opportunities in the United States on a scale sufficient to reestablish a regime of equitable and stable economic growth.

In putting an end to the norm of a career with one company, the marketization of employment in the 1990s entailed the substitution younger, less experienced but less expensive workers for older, more experienced but more expensive, workers. Permanent layoffs now affected college-educated men with considerable human capital who should have been best positioned to maintain stable and remunerative jobs in the US labor force. High-tech employers competed for labor by offering broad-based stock option programs as an alternative to the Old Economy expectation of a career with one company. When labor markets were tight, however, this New Economy mode of employing college-

educated labor posed problems for the processes of collective and cumulative learning that remained essential for innovation in knowledge-intensive firms. Especially in the dot.com boom of the last half of the 1990s, the combination of tight labor markets and a speculative stock market enabled employees of established New Economy companies to book enormous gains from exercising their stock options.

As the most extreme example, I have estimated that at Microsoft the *average annual gain per employee* (not including the five highest paid) from exercising stock options rose from \$79,000 across 19,000 employees in 1996 to \$238,000 across 25,000 employees in 1998 to \$449,000 across 32,000 employees in 2000. Dominated by these gains from exercising stock options at Microsoft, County Business Pattern data show that average real wages of software publishing employees in Washington State more than tripled from \$112,600 in 1996 (already almost double 1994 real wages) to \$380,038 in 2000 (Lazonick 2009a, ch. 2). With these incomes, there was little if any relation between a worker's level of work effort and level of pay, and employees who reaped such bonanzas were tempted to job-hop to startups where they could get huge numbers of stock options at minimal exercise prices.

More generally, with the rise and expansion of NEBM in the 1980s and 1990s, US high-tech employers complained of labor shortages. One solution for which they lobbied was an expansion of the availability of non-immigrant work visas. H-1B visas enable college-educated workers, mainly in high-tech fields, to work in the United States for up to seven years before they either obtain US immigration status or (presumably) go back home. The L-1 visa offers the same employment opportunity, but requires the company that holds the L-1 visa to have already employed the employee for at least one year prior to his or entry into the United States.

Without an explicit cap on the number of H-1B visas that could be issued to non-immigrant workers, the US immigration authorities had handed out 49,000 in 1989. Through legislation that resulted in the Immigration Act of 1990, labor interests had hoped to have an annual cap set at 25,000 H-1B visas. Instead, as the result of lobbying from high-tech employers and immigration lawyers, the Immigration Act set the cap at 65,000. In November 1990, on the eve of the signing of the new Act by President George Bush, Harris N. Miller, coordinator of the Business Immigration Coalition, representing 250 companies and business associations formed to lobby for the legislation, told a New York Times reporter: "We're very concerned about shortages of skilled people, particularly in the sciences and engineering, computer science and mathematics" (DePalma 1990). In 1991, with the Immigration Act in place, Miller remarked: "We were successful because we refashioned the debate from the jobs displacement issue, where we always lost, to the competitive issue" (Lee 1991). Sure enough, with lobbying from the Information Technology Association of America, of which Miller was president from 1995 to 2006, the American Competitiveness and Workforce Improvement Act of 1998 raised the cap to 115,000 for fiscal years 1999 and 2000, and the American Competitiveness for the 21st Century Act of 2000 raised it to 195,000 for fiscal years 2001 through 2003 (Lazonick 2009a, 157-162).

Over the course of the 1990s and into the 2000s, the H-1B and L-1 visa program, both of which have been used most extensively to employ Indian nationals in the United States, became central to the globalization of the high-tech labor force through employment with both US-based and foreign multinational companies (Lazonick 2009a, ch. 5). Over the past decade among the foremost holders of H-1B and L-1 visas have been Indian information-technology services companies such as TCS, Infosys, and Wipro, providing high-end IT services to US-based companies as a prelude to these services, once their delivery has been mastered, being offshored – or from the perspective of the Indian companies, “nearshored” – to India.

Meanwhile US tax law encourages companies to offshore employment. Through an overseas tax deferral loophole that dates back to the end of the Eisenhower Administration in 1960, a US company does not pay the 35 percent corporation tax on foreign profits until the company repatriates the profits to the United States (Lazonick 2011b). In the 2004 Presidential campaign, John Kerry proposed amendments to the tax code that would reward US companies for creating jobs in the United States rather than moving jobs offshore. The preferred approach of the Bush Administration was the Homeland Investment Act as part of the American Job Creation Act of 2004 which provided a one-year corporate income tax holiday on profits repatriated, with the stipulation that these profits had to be used for investments that create jobs. The Act expressly prohibited the use of these funds to pay dividends or do stock buybacks. US corporations responded by repatriating \$299 billion in profits in 2005 compared with an average of \$62 billion in 2000-2004 and a subsequent decline to \$102 billion in 2006 (Dharmapala et al. 2011, 754).

Dharmapala, Foley, and Forbes (2011, 756) found, however, that “[r]ather than being associated with increased expenditures on domestic investment or employment, repatriations were associated with significantly higher levels of payouts to shareholders, mainly in the form of share repurchases. Estimates imply that a \$1 increase in repatriations was associated with an increase in payouts to shareholders of between \$0.60 and \$0.92, depending on the specification.” Dharmapala et al. (2011, 756) suggest that companies were able to make these distributions to shareholders without violating the terms of the repatriation legislation by using the repatriated funds “to pay for investment, hiring, or R&D that was already planned, thereby releasing cash that had previously been allocated for these purposes to be used for payouts to shareholders.”

A persistent promise in Barack Obama’s campaigns for the Senate in 2004 and the Presidency in 2008 was the he would end tax breaks for corporations that ship jobs overseas. In a speech in May 2009, President Obama (2009) declared: “It’s a tax code that says you should pay lower taxes if you create a job in Bangalore, India, than if you create one in Buffalo, New York.” In June 2009, Microsoft CEO Steve Ballmer responded that an end to the overseas tax deferral would make “US jobs more expensive”, and that if the Obama Administration insisted on changing the tax law Microsoft would be “better off taking lots of people and moving them out of the US” (Donmoyer 2009). In September 2009 the Obama Administration met with US high-tech executives, and agreed to shelf the plan to end the tax deferral (King and Williamson 2009). Nevertheless, in his State of the Union address on January 27, 2010, President

Obama insisted that “it is time to finally slash the tax breaks for companies that ship our jobs overseas and give those tax breaks to companies that create jobs right here in the United States of America” (Obama 2010).

This tax loophole has not yet been closed. Indeed, in October 2010, John Chambers, chairman and CEO of Cisco Systems, and Safra Catz, president of Oracle, published a Wall Street Journal opinion piece in which they sought to counter criticism in the press that US corporations were sitting on one trillion dollars in cash instead of investing in jobs in the United States. The two high-tech executives claimed that US corporations were holding the cash in question overseas, and recognized that these funds “could be invested in U.S. jobs, capital assets, research and development, and more” if US corporations had an incentive to do so. “But,” they continued (with my emphasis), “for U.S. companies such repatriation of earnings carries a *significant penalty: a federal tax of up to 35%*. This means that U.S. companies can, without significant consequence, use their foreign earnings to invest in any country in the world—except here.”

Having transformed an existing US government tax concession to US corporations into a tax penalty on US corporations, Chambers and Catz noted that, among other things, repatriated profits could “provide needed stability for the equity markets because companies would expand their activity in mergers and acquisitions, and would pay dividends or buy back stock.” To lure the \$1 trillion back to the United States, they proposed a 5% tax on repatriated profits that would yield the US government a quick \$50 billion, which could then “be used to help put America back to work...[by giving] employers – large or small – a refundable tax credit for hiring previously unemployed workers (including recent graduates).” “Such a program,” they crowed, “could help put more than two million Americans back to work at no cost to the government or American taxpayers. How’s that for a good idea?” Along with other business executives, Chambers presented his “good idea” directly to President Obama at the White House on December 15, 2010 (Drucker 2010).

Investment institutions:

The concept of the “developmental state” came into use in the early 1980s to explain the rise of Japan to a position of international industrial leadership (Johnson 1982). The concept was subsequently invoked as an explanation of the successful growth of follower East Asian nations, and in particular South Korea and Taiwan (Woo-Cumings 1999). The general assumption in this literature was that, in comparative perspective, the role of the state in the United States was at most regulatory, but not developmental. Yet the historical record strongly supports the view that in terms of government support for the creation of the physical infrastructure and human capital that business enterprises need as foundations for their innovative investment strategies, the United States has had a powerful developmental state (Lazonick 2008; Block 2009; Block and Keller 2010; Mazzucato 2011; Lazonick 2013).

One can even find some active participants in the unique US startup community who appear to agree with this proposition. In an article entitled “Venture Capital & the Growth of Silicon Valley,” published in the midst of the microelectronics boom of the

early 1980s, William R. Hambrecht (1984, 74), founder and principal of Hambrecht & Quist, a pre-eminent Silicon Valley investment banking and venture capital firm, observed: “There were three major catalytic events that occurred [from 1935 to 1950] that propelled our country into a position of technological leadership.” Firstly, in the mid-1930s, the United States received a wave of European refugees, including some of the world’s most prominent scientists and engineers. Secondly, during World War II the US government made massive investments in research and development. And thirdly, in the aftermath of World War II, under the GI Bill, the US government paid for the university tuitions and subsistence costs of millions of people who might not otherwise have been able to afford a higher education. As Hambrecht (1984, 75) summed up the impact: “A group of European scientists and engineers and the newly trained American engineers, fresh from their experiences in the R&D labs, went back to the universities and trained a whole new generation of engineers who in the 1950s and 60s created the microelectronics revolution.”

Hambrecht’s historical perspective on the origins of Silicon Valley, potted though it is, finds ample support in the work of researchers such as Tilton (1971), Braun and MacDonald (1982), Flamm (1987 and 1988), Leslie (1993a and 1993b), Norberg and O’Neill (1996), and Lécuyer (2006). In the late 1990s, under the auspices of the US National Research Council (NRC), a group of scholars published Funding a Revolution: Government Support for Computing Research (National Research Council 1999). “Innovation in computing,” the NRC (1999, 2) observed,

stems from a complementary relationship among government, industry, and universities. In this complex arrangement, government agencies and private companies fund research that is incorporated into myriad new products, processes, and services. While the contributions of industry to the computing revolution are manifest in the range of new products, processes, and services offered, those of the federal government are harder to discern. Nevertheless, federal funding of major computing initiatives has often contributed substantially to the development and deployment of commercial technologies. Commercial developments, similarly, have contributed to government endeavors.

In the biotechnology industry, which was booming in the 2000s before the IPO market dried up in the financial crisis of 2008, the flow of resources has been much more one way from the government to firms (Lazonick and Tulum 2011). As already noted, through the NIH, the US government has long been the nation’s (and the world’s) most important investor in knowledge creation in the medical fields. Without NIH funding of the indispensable knowledge base, venture capital and public equity funds would not have flowed into biotech.

A number of regulatory changes in the late 1970s and early 1980s made this knowledge base both more valuable and more accessible to high-tech business interests. In the late 1970s, an increasingly powerful high-tech lobby, led by the National Venture Capital Association and the American Electronics Association, convinced the US Congress to lower tax rates to provide greater financial incentives for the allocation of resources to

high-tech startups (see Lazonick 2009a, ch. 2). The Bayh-Dole Act of 1980 facilitated the access of business enterprises to the federally-funded knowledge base (Mowery et al. 2004). In 1980 the US Supreme Court decision in *Diamond v. Chakrabarty* that genetically engineered life forms are patentable greatly enhanced the opportunity for the types of knowledge transfers that Bayh-Dole envisioned. In 1982 the Small Business Administration started the Small Business Investment Research program, in which federal research agencies, including the NIH, set aside 2.5 percent of their extramural R&D budgets for grants to small businesses. The Orphan Drug Act of 1983 encouraged pharmaceutical companies to invest in the development of drugs for “rare” diseases by granting generous tax credits for research and experimentation as well as the possibility of market exclusivity for seven years from the time that a drug is approved for commercial sale by the FDA.⁸ Through November 16, 2012 the FDA designated 2,694 orphan drug submissions and had granted market exclusivity on 347 approved drugs.⁹

Many other examples, including aviation, energy, and the Internet, can be added to a long list of US government investments in advanced technology (see Lazonick 2013). The fact is that the United States has had, and still possesses, a formidable developmental state. As for Japan, it was able to grow rich without its state being as developmental as that of the United States precisely because its firms could take advantage, through licensing and joint ventures, of knowledge created in the United States and other advanced western nations. China is now involved in the same process of technology transfer and indigenous innovation, but with a home market serving a population ten times that of Japan, vast amounts of foreign direct investment by multinational corporations that participate in the Chinese government’s policy of “trading markets for technology”, and massive government investment in China’s science and technology infrastructure (Lazonick 2009a, ch. 5).

Meanwhile in the United States, the critical role of the developmental state remains hidden, as Fred Block (2009) has argued. In part the problem is ignorance on the part of economists and policy-makers for lack of an analytical framework that can explain how, in combination with innovative enterprise, investments made by the developmental state are translated into higher living standards. In part the problem is the conscious denial by business interests who reap disproportionate gains from innovation of the role of the government as investor in the knowledge base that makes the industry possible. As an example, in its 2006 annual review of the biotech industry, the consulting company Ernst & Young (2006, 38) displayed a graphic labeled “Heavy Regulation”, that included the plethora of US government agencies that have an interest in the industry – with the NIH, which spent \$28.7 billion on life sciences research that year, in a central “heavy regulator” position!

At the same time, US business interests demand that the state play a developmental role when there is a technology deficit that needs to be filled. US high-tech companies lobby the government for more public investment in the high-tech knowledge base, even as these companies allocate their own profits to huge stock buybacks. For example, during the past decade, Intel, along with the Semiconductor Industry Association (with academic

⁸ <http://www.fda.gov/orphan/oda.htm>

⁹ <http://www.accessdata.fda.gov/scripts/opdlisting/opd/index.cfm>

support from Harvard economist Dale Jorgenson), has pressured the US Congress to increase spending on the National Nanotechnology Initiative (NNI). At a press conference that the Semiconductor Industry Association organized in Washington, DC in March 2005, Intel CEO Craig Barrett warned: “US 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.”¹⁰

Yet, in 2005, the annual NNI budget was \$1.2 billion, just 11 percent of the \$10.6 billion that one company – Intel – spent on stock repurchases in that year alone. Indeed, the \$48.3 billion that Intel spent on buybacks in 2001-2010 was more than four times the total of \$12.0 billion that, over the same period, the U.S. government allocated to the NNI.¹¹ 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 (in Barrett’s words) “to ensure that America continues to be the world leader in information technology.”

As another example, in June 2010, a number of prominent business executives, as members of the self-styled American Energy Innovation Council (AEIC), called for a tripling of US government spending on clean-energy research to \$16 billion per year (AEIC 2010). Yet in a New York Times article (Broder 2010), John Doerr, a noted venture capitalist with the Silicon Valley firm of Kleiner, Perkins, Byers and Caufield and a member of the Council, was quoted as saying: “When our company shifted our attention to clean energy, we found the innovation cupboard was close to bare. My partners and I found [that] the best fuel cells, the best energy storage and the best wind technology were all born outside of the United States.” Why have US companies not been more active in supporting the development of these alternative energy technologies? Over the decade 2001-2010, the seven corporations whose current or former leaders were represented on AEIC wasted a total of \$237 billion – an average of \$23.7 billion per year – buying back their companies’ stock, including \$110.0 billion by Microsoft, \$52.1 billion by Bank of America, and \$48.5 billion by General Electric. This money, even a small portion of it, could have been spent on research to “restock the cupboard” with US-based innovations. Instead it went to boosting stock prices and, in the process, lining the pockets of these highly paid executives who lobby Congress to have taxpayers make investments in America’s energy future.

US taxpayers might expect that, in urging the US government to spend on these neglected technologies, the executives of these leading US companies would already be allocating substantial sums from the ample financial resources that they control to productive uses that, by their own account, have a high national priority. Instead they allocate massive amounts of financial resources to buying back stock, and lobby for lower corporate and personal tax rates while asking taxpayers to make the investments in tomorrow’s technologies.

¹⁰ “U.S. Could Lose Race for Nanotech Leadership, SIA Panel Says,” Electronic News, March 16 2005.

¹¹ <http://nano.gov/about-nni/what/funding>

4. Toward an Economics of “Organizational Success”

In this essay, I have outlined how governments and businesses invest in innovation that forms the foundation for economic development. These investments provide the schools and the jobs that enable and encourage households to make the complementary investments in human capital necessary for a high-productivity labor force. When governments, businesses, and households are all working together to develop and utilize a society’s productive resources, the superior performance of the economy is the result of organizational success.

The importance of an economy based on organizational success may be new economic thinking, but the need for an economics of organizational success can be traced back to such intellectuals as Adam Smith (pin manufacture), Karl Marx (the factory system), Alfred Marshall (the industrial district), Joseph Schumpeter (innovation as the “fundamental phenomenon”), Edith Penrose (the growth of the firm), and Alfred Chandler (the managerial revolution). More fundamentally, the need for an economics of organizational success can be found in the comparative history of economic development in the advanced and developing economies, with the United States playing a leading role.

If the economics of organizational success is important for understanding the processes and outcomes of economic development, it is also highly relevant for economic policy. It can provide a more robust perspective on proposals to overcome the current malaise of the US economy than those that derive from the economics of market failure. According to the “market failure” arguments, the persistently high level of unemployment in the US economy is the result of either a lack of business confidence due to insufficient effective demand (see, e.g., DeLong 2010; Krugman 2010) or a mismatch in the labor market between the capabilities of the labor supply that households are able to supply and the capabilities that business enterprises demand (see e.g., Kocherlakota 2010).

The Keynesian argument that high unemployment is the result of a shortfall of effective demand calls for the government to stimulate the economy through a significant, but temporary, increase in spending to restore business confidence. Once the government stimulus has primed the economic pump, the renewed confidence of business executives in the demand for the goods and services that their firms produce will result in increased business employment that will return the economy toward full employment without the need for further government stimulus. Quite apart from the question of the size and duration of the “stimulus” that is required to achieve this result, the fundamental problem with this demand-side policy approach in the current US economy is the assumption that the high rate of unemployment reflects a failure of business confidence.

In the global economy, there are booming markets in China and elsewhere in which US-based corporations can make ample profits without increasing their investments in the United States. Corporate executives such as John Chambers and Safra Catz, quoted above, do not sound like they lack business confidence. They want more tax privileges to induce hem (so they say) to invest the vast corporate resources that they control. Even if the granting of these privileges were to result in a significant inflow of repatriated profits

to the United States, however, there is every reason to expect that these executives would “invest” corporate resources in boosting the prices of their companies’ own stock rather than in innovation and job creation.

Ralph Gomory (2009), former top scientist at IBM and former president of the Sloan Foundation, has argued that the structural problem of corporate investment and employment in the United States reflects a disconnect between the interests of the nation’s corporations and the interests of the country (see also Gomory and Sylla 2012). In my view, the source of the problem of organizational failure that Gomory highlights is the disconnect between the interests of the top executives of US corporations and those of the vast majority of the US members of the labor force even in their own companies. This segmentation of the interests of top executives from those of the company and the country originates in the ways in which the United States as a society evaluates company performance and rewards executives on the basis of it. The prevalent ideology of “maximizing shareholder value” is antithetical to the economics of organizational success (Lazonick 2010c).

The United States requires a transformation in governance institutions that will result in cooperation between government and business in investing in innovation and the infrastructure, both physical and human, that supports it. In his 2011 State of the Union address, President Obama (2011) called for investment in infrastructure and innovation. In the name of a “free market economy”, however, there is an all-out political attack on government spending, while, under the cover of “maximizing shareholder value”, the executives of major US business corporations are making their contributions to the “free market economy” by declining to invest in the United States. The economics of market failure cannot respond to this dire state of affairs. We need an economics of organizational success.

The supply-side argument that persistently high unemployment in the US economy is a purported skills mismatch in the labor market is a prime example of a “market failure” perspective that misses the main point (for a critique, see Miller and Wicks-Lim 2011). For example, in September 2010, Narayana Kocherlakota, president of the Federal Reserve Board of Minneapolis, argued: “The bigger issue [of unemployment] is mismatch. Firms have jobs, but can’t find appropriate workers. The workers want to work, but can’t find appropriate jobs. There are many possible sources of mismatch – geography, skills, demography – and they probably interact in nontrivial ways. Kocherlakota (2010) went on to assert that research “implies that over 2.5 percentage points of the current unemployment rate is attributable to mismatch.”

The problem with the mismatch argument is that it fails to ask how it happens that for the vast majority of jobs there is, indeed, a “match”. The problem is not “market failure”. From the “organizational success” perspective, in the normal operation of the US economy, the market is not the primary matchmaker. Certainly, the market is often (but by no means always) important for bringing a potential employer and potential employee in contact with each other. But for the job to be productive once they enter into an employment relationship, both sides have to expend resources to create the match. This need for what I have called “organizational integration” holds for small and large firms,

except that in large firms the organizational learning processes are both more routine and more complex. Insofar as a skills mismatch is a major problem in the economy, there is a need to reform employment and investment institutions to solve it. To guide such reform, we need a theory of organizational success.

The US economy is highly dependent on innovative enterprise not only to generate economic growth but also to create sustainable employment opportunities for the population that can, at a minimum, replace the middle-class jobs that through rationalization, marketization, and globalization the US economy has lost over the past three decades. Instead the financialization of the US corporation has exacerbated the loss of jobs from these structural changes in employment.

When there is job displacement because of rationalization, marketization, and globalization, business and government must collaborate to ensure the availability of the education and training needed to reposition displaced workers to perform new productive roles in the economy. The financialized corporation tends to opt out of this collaborative effort because it operates according to an ideology – “maximizing shareholder value” – that argues that it has no responsibility for the displaced workers. In doing so, the financialized corporation not only avoids a share of the cost of retraining its workers but also fails to participate in making the investments that can generate new and potentially sustainable middle-class jobs for the US labor force.

Government investment in physical infrastructures such as communication networks and transportation systems as well as human capital through higher education and research funding provides an essential foundation for business investment, especially in high-tech fields. Government subsidies to business, often implemented through tax legislation, can serve as further inducements to business investment. As stated more than once in this essay, in the United States, the government, acting as a “developmental state”, has been critical to funding of every high-tech sector of the economy in which US industry has had innovative success.

But for these government investments and subsidies, the United States would not lead the world in venture capital – an industry devoted to new-firm formation and growth. Yet, in the United States, a disproportionate share of the returns to a successful new venture accrue to those entrepreneurs and financiers who put an innovation on the market while neglecting the contributions of other stakeholders, especially taxpayers, who made significant contributions to the innovation process (see Lazonick 2009a; Mazzucato 2011; Lazonick and Mazzucato 2012). In the name of “shareholder value,” rewards are reaped at the expense of non-shareholding stakeholders who risked their labor and capital in the collective and cumulative innovation process.

Once a new venture has become a going concern, shareholder-value ideology continues to hold sway. Innovation may drive stock prices for a while, and through broad-based stock option plans thousands of employees can share the gains. But the use of stock options as a mode of compensation means that the realization of gains depends on selling, not holding, ownership stakes. Moreover, in an exploding stock market as occurred in the Internet boom of 1996-2000, the returns to option holders reflect gains from speculation

much more than gains from innovation. Furthermore, even in the tight labor markets of the Internet boom, high-tech employees who could potentially reap large gains from the exercise of stock options were also vulnerable to being thrown out of work through marketization and globalization.

In the 2000s up to the financial crisis of 2008, it was manipulation much more than innovation or speculation that drove stock prices. Through the escalation of stock buybacks from 2003 to 2007, the S&P 500 Index peaked in 2007 at a higher level than that achieved through the often wildly speculative stock valuations of 2000. In effect in the period 2003-2007 major US companies used escalating stock buybacks to compete with one another to boost their stock prices and manage quarterly EPS. In the Great Recession of 2008-2009 stock prices tumbled as did stock buybacks. By 2010 US companies were profitable again, but they both increased buybacks and still sat on huge cash reserves (in some cases augmenting these reserves by borrowing money at very low interest rates), preparing themselves, according to my prognosis, for a renewed competitive escalation of buyback activity (Jewell 2010; Krantz 2011). One reading of the Chambers-Catz op-ed piece quoted above is that all that is constraining corporate executives from engaging in another round of escalating competitive manipulation of the stock market, such as the one that occurred in 2003-2007, is the ability to bring corporate profits back to the United States with minimal taxes.

Just as the cause of the Great Recession was the financialized business corporation, so too the subsequent jobless recovery has been the result of the continued domination of shareholder-value ideology and practice in the US corporation. In my view, therefore, any government policy agenda that seeks to restore innovation to, and recreate the middle class in, the United States needs to begin with an attack on the financialized business corporation (Lazonick 2012). This policy agenda then needs to engage in constructive programs in collaboration with a nonfinancialized business community to rebuild the capabilities of the US labor force to engage in innovative enterprise. The policy agenda for sustainable prosperity includes, in brief, five major reforms:

- *Ban stock repurchases by established US corporations so that corporate financial resources that could be allocated to innovation and job creation are not wasted for the purpose of manipulating a company's stock price.*
- *Index employee stock options to an indicator of innovative performance so that executives cannot gain from speculation in and manipulation of their companies' stock prices.*
- *Regulate the employment contract to ensure that workers who contribute to the innovation process share in the gains to innovation.*
- *Create cooperative government-business work programs that make productive use of and enhance the productive capabilities of educated and experienced workers whose human capital would otherwise deteriorate through lack of other relevant employment.*

- *Implement taxes on the gains from innovation to fund those government agencies that need to invest in the public knowledge base required for the next round of innovation.*

It will be impossible to justify these reforms if Americans do not question the ideology that companies should be run to “maximize shareholder value”. It is an ideology that denies the role of social organization in making investments in innovation. It is an ideology that results in inequity and instability and that ultimately undermines the productive foundations of economic growth. While shareholder-value ideology has currency throughout the world, its pervasive and unquestioned acceptance has become an almost uniquely American phenomenon. Even in the United States, it was an ideology with which the economy could do without until the 1980s – which is when the trends to permanent job displacement and growing income inequality set in (Lazonick and O’Sullivan 2000).

The United States is engaged in global competition with highly innovative national economies in which shareholder-value ideology does not hold sway. As long as US-based corporations are permitted to be governed by this ideology, the US economy will remain incapable of generating middle-class jobs on the scale that is needed to restore sustainable prosperity. Given the changes in employment that have occurred in the US economy over the past three decades, the achievement of equitable and stable growth in the United States will become more and more out of reach. To address these major problems and to find viable solutions, there is a need for an economics of organizational success.

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