Journal of Behavioral and Applied Management
2023, Vol. 23, No. 2, 94–103
https://jbam.scholasticahq.com/

The CEO as Monopolist

Robert F. Mulligan
American Institute for Economic Research

CEOs can extract extraordinarily high income from the firms they manage because of their monopoly power. This derives both from a general preference for hiring proven CEOs who have already served at other firms, as well as from the tendency of new CEOs to reorganize the firms they lead. Firms' status quo bias unnaturally delimits the pool of CEO applicants and increases the monopoly power of incumbent CEOs. New CEOs who install their own top management teams generally reorganize the firm to optimize the application of their own abilities and those of their new team. However, CEOs can also reorganize to maximize their monopoly power. Conceptualizing CEOs as potential monopolists integrates insights from the principal/agent, upper echelon, efficiency wage, and x-inefficiency literatures. This paper develops the consequences of monopolistic CEOs who potentially receive efficiency wages that may exceed their marginal revenue product. If CEO income is sufficiently high, their labor-supply curves bend backwards, something far less likely for other employees. A backward-bending labor-supply curve can result in CEOs receiving even greater income as they deliver even lower levels of executive leadership.

CEO compensation has become increasingly controversial as it rises in both absolute and relative terms (Di Nardo, Fortin, & Lemieux 1996; Bebchuk & Fried 2004, 2005; Gordon & Dew-Becker 2007; Stiglitz 2012; Mishel & Davis 2014). Toscano (2014) cites the worst American CEOs including Vikram Pandit of Citigroup, Carly Fiorina of Hewlett Packard, Stan O'Neal of Merrill Lynch, Robert Nardelli of Home Depot, Gerald Levin of AOL Time Warner, Martin Sullivan of AIG, John Sculley of Apple, Roger Smith of General Motors, Robert Allen of AT&T, John Akers of IBM, Fred Joseph of Drexel, Al Dunlap of Sunbeam, Bernie Ebbers of WorldCom, Jimmy Cayne of Bear Stearns, Ken Lay and Jeffrey Skilling of Enron, Angelo Mozilo of Countrywide Financial, and Richard Fuld of Lehman Brothers. To these might be added Michael Ovitz of Disney, Jeffrey Skilling also of Enron, Bernard Madoff of Madoff Securities, Walter Noel and Jeffrey Tucker of Fairfield Greenwich—both closely associated with the Madoff fraud—and Elizabeth Holmes of Theranos.

Some of these CEOs may have been merely unlucky in the timing of their CEO tenure, but each presided over spectacularly large losses of shareholder value and market capitalization. Most received virtually astronomical compensation with a few also receiving astronomical severance. What allows firms to select poor CEOs and then overcompensate them? Poor CEO performance can reduce firm output, rendering the CEOs' marginal revenue product (MRP) negative. This paper employs monopoly/monopolistic-competitive markets to integrate diverse issues of agency costs, compensation, effectiveness, efficiency wage theory, and x-inefficiency to explain how poor CEOs can be so dramatically overcompensated.

Introduction

Firms compensate executives for managerial services and entrepreneurial planning. The CEO's role as manager of all the firm's resources offers unique opportunities to capture part of the income these resources generate. CEOs may also capture profits from entrepreneurial planning contributed by their subordinates. They may share these profits with subordinates, keep them, distribute them among shareholders, or any combination.

Especially high executive compensation has been criticized as rewarding failure—e.g., poor financial performance, collapses in market capitalization, mass layoffs, bankruptcy, etc. (Kerr 1975, 1995; Lawler 1990, 2012; Lambert, Larcker, & Wegelt 1993; Mehran 1995; Lazear 2000; Elson & Ferrere 2013). When a firm loses market capitalization and share value over a CEO's tenure, the CEO has an unambiguously negative MRP. Since the MRP is an upper limit on compensation the firm should be willing to pay, we need to examine the question of how this can result.

The rest of this paper is organized as follows: following this introduction, part 2 discusses current controversies in CEO compensation, part 3 develops limitations and difficulties with observing CEOs' marginal revenue product, which should constitute an upper limit on their compensation, part 4 discusses how principal-agent problems can cause CEOs to be overcompensated, part 5 discusses how CEOs can reorganize the firm to increase their monopoly power, part 6 demonstrates how CEO monopoly rents can constitute a persistent efficiency wage, part 7 develops how CEOs' ability to extract monopoly rents can impose x-inefficiency on the firm, part 8 shows how modeling the market for CEO services as a monopoly market captures

Article citation: Mulligan, R. F. (2023). The CEO as monopolist. *Journal of Behavioral and Applied Management, 23*(2), 94-103.

many of the considerations presented in parts 3-7, and finally part 9 presents concluding comments.

CEO Compensation: Some Current Controversies

U.S. executive compensation has become the highest in the world both in absolute terms and relative to median salaries (Hacker & Pierson 2010: 62; Bakija, Cole, & Heim 2012; Laschever 2013). CEO compensation has risen significantly faster in the U.S. than what can be explained by firm size, financial performance, or industry classification (Bebchuk & Grinstein 2005; Gabaix & Landier 2008; Jarque 2008; Kaplan 2008; Kaplan & Rauh 2013), attracting increasing criticism for rewarding poor financial performance (Bogle 2008; Fernandes et al 2012), collapses in market capitalization, mass layoffs, or bankruptcy (Kerr 1975, 1995; Lawler 1990, 2012; Lambert, Larcker, & Wegelt 1993; Mehran 1995; Lazear 2000; Elson & Ferrere 2013), and contributing to income inequality (Kuznets 1955; Gordon & Dew-Becker 2007; Bakija, Cole, & Heim 2012).

Since the 1990s, U.S. CEO compensation has outpaced corporate profits (Stiglitz 2012), national economic growth, and average compensation. Between 1980 and 2004 total CEO compensation grew 8.5% annually on average, compared with growth in corporate profits of only 2.9%, and per capita GDP growth of 3.1% (Bogle 2008: 21). By 2006, CEOs on average made 400 times more than the median worker in their firms. This gap had become twenty times wider than it had been in 1965 (Bebchuk & Grinstein 2005). These statistics suggest a general lack of accountability and a persistent disconnect between compensation and financial performance (Gibbons & Murphy 1992; Gan & Park 2016). CEO pay formulas have been criticized based on morality and fairness, in that they are simply too large (Bebchuk & Fried 2005: 8; Anderson & Pizzigati 2012: 59-63), and for failing to incentivize CEOs to maximize shareholder value (Beber, Janakiraman, & Kang 1996; Holmstrom 1999; Aboody & Krasznik 2000; Chance, Kumar, & Todd 2000; Carter & Lynch 2001; Sanders 2001; Callahan, Saly, & Subramaniam 2004; Bebchuk & Fried 2005: 8). There can be little doubt that CEO compensation has been, and will continue to be, highly controversial.

CEOs' Marginal Revenue Product

For any employee, the marginal revenue product (MRP) is defined as the employee's addition to a firm's total revenue. To maximize profits and minimize costs, wages and any other costs from hiring an employee must be less than the employee's MRP or it will cost more to hire them than the additional revenue they generate for the firm. As long as the employee adds more revenue than costs, hiring them increases profits, and a profit maximizing firm should continue to hire more workers until the next hire's MRP would be lower than their wage. The model of a profit maximizing firm assumes employees are perfectly substitutable, so all employees receive the same wage determined in a perfectly competitive labor market. Employee compensation should fall within a range bounded on the lower end by the highest wage from alternative employment, because the employee can obtain it by defecting. The compensation range is bounded on the upper end by employee MRP, which the firm should never intentionally exceed, because the marginal value of the employee's services does not justify higher compensation (Himmelberg & Hubbard 2000; Oyer 2004).

Though CEOs occupy a unique position in the firm, this principle should apply equally well to them. However, some CEOs are so spectacularly compensated, often accounting for a high percentage of the firm's revenue, that it calls for a special economic theory to explain how purportedly profit maximizing firms can exhibit such behavior. Markets for executive services are highly heterogeneous and less competitive than more conventional labor markets. The high worker homogeneity and substitutability labor economics assumes for most workers does not apply to CEOs.

Can top executives make more than their marginal revenue product? This question has not been adequately addressed in the literature, especially not for CEOs, who have the power to set compensation for everyone else in the firm. As will be seen below, monopoly theory, also called the theory of imperfect competition, helps explain how CEOs can extract compensation greater than their MRP. MRP is difficult to observe for individual employees, and is especially difficult to observe for CEOs, highlighting the perceptual limitations on the accuracy of matching compensation to MRP. CEO hiring boards generally have optimistic expectations for the individuals they choose (Yermack 1996; Zajac 1996; Hallock 1997, 1999; Goyal & Park 1992). Often subsequent experience is less favorable.

One paradox of executive compensation is that poor CEOs have the lowest—in some cases negative—MRPs. Because of their profound negative impact on productivity, financial performance, firm morale, etc., it can be worth paying high severance to get rid of a poor CEO. Any CEO compensation exceeding MRP comes out of the firm's profits. Therefore, firm directors have a fiduciary responsibility to avoid paying executives more than their MRP, at least within the reasonable ambiguity of how accurately executive MRP can be estimated.

CEOs should receive a share of the firm's profits for two reasons—first, to compensate them for the entrepreneurial planning they perform and the profits that generates for the firm (Kirzner 1973, 1984b)—this is their direct contribution, and second, they can extract a share of the profits made possible by entrepreneurial planning contributed by anyone else the firm employs, because the CEO can take some responsibility for empowering subordinates to act on their own entrepreneurial vision—this is the CEO's indirect contribution (Kirzner 1978, 1984b, 1997).

In the second case, as a best practice, subordinates should receive the largest share of the profits they create. Aggregated over many subordinates in an entrepreneurial firm, even a small share captured by the CEOs may still

be quite large. Excess pay exceeding the CEO's value added can never be strictly justified (Mulligan 2019). Generally, when this occurs, it results from the vagaries of estimating MRP or disconnects between over-optimistic expectations and mundane reality.

Agency Costs

Principal-agent problems (Jensen & Meckling 1976; Bertrand & Mullainathan 2001) contribute to CEOs being overpaid. CEOs and the notoriously risk-averse corporate boards and compensation committees who determine CEO compensation are both agents for the shareholders who are the firm's principal owners (Hallock 1997, 1999; Edmans & Gabaix 2011). As CEOs and the boards they report to are both agents, their mutual interests and vision are likely to conform. Boards generally want to avoid testing an unproven CEO on the job and strongly prefer proven performers who have already served as CEOs (Terviö 2008; Banker et al 2013). CEOs hoping to change firms are incentivized to perform well and build their reputation (Graham, Li, & Qiu 2012), but CEOs who are willing to stay with their current firms are incentivized to extract more income (Goyal & Park 2002). CEOs act as agents for shareholders but face a conflict of interest in that they also desire to maximize their own compensation (Fama 1980; Bizjack, Lemmon, & Naveen 2008). CEOs play a unique role within the firm, with hyperspecialized labor markets characterized by incumbent heterogeneity, poor substitutability across firms, compensation determined largely by previous assignments, etc. (Cremers & Grindstein 2014).

Corporate boards frequently identify more strongly with the CEOs they hire and supervise than with the principals whose interests they are supposed to protect (Jensen & Meckling 1976; Goyal & Park 2002). This misalignment of incentives may result in CEOs being overcompensated (Jensen & Murphy 1990; Lax & Sebenius 1991; Kaplan 2008). Compensation committees often ensure their CEO receives high compensation above what their performance justifies, for example, by redesigning incentive compensation in midstream to ensure CEOs are rewarded even when they fail to reach performance targets, waiving penalties, etc. (Yermack 1995, 1997; Fried 1998, 2000; Seyhun 1998; Aboody & Kasznik 2000; Chance, Kumar, & Todd 2000: 148; Brenner, Sundaram, & Yermack 2000 :121; Pollock, Fischer, & Wood 2002: 1178; Callaghan, Saly, & Subramaniam 2004; Bebchuk & Fried 2005: 140-141, 163-165, 177-179).

Corporate boards generally prefer hiring serving CEOs from other firms (Ryan & Wiggins 2001)—who are perceived as less risky, having already been selected by the other firm. Even when these CEOs ultimately fail, the choice seems less risky and subject to criticism than an untried CEO who has not served elsewhere. If boards were more open to aspiring CEO candidates, they would choose from a larger pool and have to evaluate actual capabilities. This would better incentivize candidates to build performance and reputation rather than extract revenue (Bertrand & Mullainathan 2000, 2001; Marcel 2009). Firms would be less able to rely solely on the apparent lower risk from only considering serving CEOs (Murphy, Shleifer, & Vishny 1991; Bebchuk & Fried 2010). Firms' status quo bias also helps explain short CEO tenures—incumbent CEOs face artificially high demand and can often defect for higher pay (Miller 1991; Mehran 1995). The frequency of this occurrence also suggests firms must offer higher pay to dissuade CEOs from defecting (Cheng & Leng 2004).

Compensation committees and consultants generally select peer comparison firms the board aspires to emulate but which may not be aligned with the CEO's realized future performance (Bizjak, Lemmon, & Naveen 2008; Bogle 2008; Graham, Roth, & Dugan 2008; Laschever 2013). CEOs and compensation consultants face a conflict of interest whenever the CEO can award further consulting contracts (Crook 2012: 34). However, although there is clearly a theoretical principal-agent problem in setting CEO compensation, shareholders nearly always approve CEO compensation (Thomas & Martin 2000: 58-59; Bebchuk & Fried 2005: 51).

One cost of indirect oversight by agents acting on behalf of shareholders, whether CEOs or boards, is the extent CEO are permitted to develop and exploit monopoly power. Boards' strong preference for hiring incumbent CEOs artificially restricts the candidate pool, makes it less necessary for hiring boards to evaluate candidate characteristics and performance, and enables successful candidates to extract higher compensation. Although board preferences for incumbent CEOs help incentivize CEO performance, the artificially restricted pool of incumbents contributes to the frequency of defection and forces firms to offer even higher compensation.

Firm Reorganization & Executive Monopoly

CEOs can and should tailor the firm's organization and personnel to best apply their own talents (McNeil & Thompson 1971; Darrough & Melumad 1995). New CEOs sometimes reorganize the firm to enhance the complexity of its administrative structure (Hambrick & Mason 1984: 199), apparently to justify higher compensation and discourage potential rivals (Fama 1980; Balkin & Gomez-Mejia 1990; Marcel 2009). However, there is typically more to firm reorganization than merely an executive maneuver to extract additional income. Reorganizations enhancing administrative complexity impose additional costs on the firm and impair organizational economies. To be financially justified, such a reorganization must add to the firm's bottom line. Some reorganizations which appear to offer little or no advantages or efficiencies, may nevertheless be strategically beneficial because they prepare the firm for expansion or innovation (Kostiuk 1990; Zajac & Westphal 1996).

Generally, if the CEO's MRP will be enhanced by a reorganization, the firm benefits along with the CEO, and higher pay is justified. However, when specialization is so narrow that no one else can run the organization with equal results, the CEO has acquired market power over

the firm and can now extract monopoly rents (Fama 1980; Tollison 1982, 2012; Bivens & Mishel 2013). This also explains why new CEOs almost invariably reorganize the firm—to undo the overspecialization which tailored the firm to their predecessor's idiosyncrasies or optimized performance in a past environment which has now changed (Miller 1991; Henderson, Miller, & Hambrick 2006), to maximize the value of their own specialized talents (Marcel 2009) along with that of their executive team (Hambrick & Mason 1984; Ryan & Wiggins 2001), and they may consciously aim at maximizing monopoly power.

Considered as entrepreneurial planners who earn both wages and profits, CEOs can also enhance their ability to earn income through reorganization for both the firm and themselves (Kirzner 1973, 1997). Reorganization may enable the firm to earn higher profits, in which case the CEO should legitimately receive a share as long as the extra revenue is also shared with shareholders and rank-and-file employees. However, reorganization may merely enable the CEO to extract a larger unearned share of the firm's revenue (Rose & Shepard 1997; Cyert, Kang, & Kumar 2002). This form of managerial capture may result in some CEOs being compensated above their MRP. Because MRP is difficult to observe, compensation committees should err on the side of conservatism—potentially undercompensating executives and relatively overcompensating the rank-and-file, or at least not undercompensating the rank-and-file by as much.

The institutional processes and structures that filter new CEOs tend to install them with high degrees of monopoly power in the first place. Once in office, a new CEO has both the opportunity to reorganize the firm and the incentive to maximize their monopoly power. This enables CEOs to extract further rents and income from the firms they manage.

CEO Compensation as an Efficiency Wage

Efficiency wage theory (Shapiro & Stiglitz 1984; Sjostrom 1993) suggests that under certain conditions, firms can earn higher profits while paying employees a premium above prevailing market wages—an efficiency wage. This may seem counter-intuitive, as firms seeking to maximize profits have an incentive to pay lower wages. Efficiency wage theory suggests that paying a higher wage can enable market leaders to cherry-pick the most productive workers, who then deliver extra effort and higher quality output for the firm and are less likely to defect to competing firms. The higher wage is profit-maximizing as long as the workers produce more output or merely higher quality output which can be sold at a premium—in effect the leading firm is sharing some of the extra revenue with the workers.

The key to making an efficiency wage feasible is that higher wages must be more than offset by added revenue. If this condition is not satisfied, the firm cannot maximize profits and continue paying an efficiency wage, but if it is, the firm paying efficiency wages becomes the industry leader, e.g. by gaining market share, selling the highest quality product, employing the best workers, etc. Whenever efficiency wages boost firm productivity and profits, eventually imitative competitors match the industry leader's wage. The leading firm then either loses its status or must raise wages further to preserve its position.

Firm preferences for hiring proven CEOs who have served elsewhere help explain the relatively short average CEO tenure in major corporations. These CEOs are most likely to achieve higher compensation by defecting. Incumbent CEOs may be rewarded more to prevent them from defecting than for actually realized performance, a form of efficiency wage (Sjostrom 1993).

Firms can pay their CEOs the equivalent of an efficiency wage through incentive compensation like stock options (Baber, Janakiraman, & Kang 1996; Balkin & Gomez-Mejia 1990; Arya & Mittendorf 2005) or loans (Kahle & Shastri 2004). Incentives are often manipulated to reward CEOs even in the face of poor performance or failure to reach incentive targets (Brenner, Sundaram, & Yermack 2000; Chance, Kuman, & Todd 2000; Carter, & Lynch 2001; Callaghan, Saly, & Subramaniam 2004; Oyer 2004). When firms pay high CEO compensation to discourage defection, this is equivalent to an efficiency wage and may also constitute a monopoly rent (Tollison 1982, 2012; Bebchuk, Fried, & Walker 2002; Bivens & Mishel 2013).

From Monopoly to X-inefficiency

Monopoly firms may suffer from x-inefficiency because they are insulated from competition, operating at a lower level of capacity or technical efficiency (Leibenstein 1966, 1978, 1979a, 1979b, 1983, 1987). X-inefficiency becomes entrenched when monopoly firms lobby for protective regulation that privileges them against competitors and potential new entrants, and the new regulatory environment gives them long-term privileges. Then the firm's strategic focus shifts from technical and allocative efficiency toward preserving their monopoly position and profits.

Since CEOs often exercise some level of monopoly power and can use it to extract higher income, including shares of income generated with the firm's other resources, they face incentives to preserve their income. This will be the case even when the CEO's compensation is not justified by performance or contribution to the firm's bottom line. X-inefficiency applies to CEOs who focus more on preserving their own high monopoly compensation than on delivering value for the firm.

CEO x-inefficiency becomes entrenched when monopolist or monopolistic-competitive CEOs prioritize preserving their own high compensation over justifying it through performance and results. They can do this in a variety of ways, e.g., by threatening to defect, exploiting board politics and pro-CEO sympathies and identification, implementing an overspecialized firm reorganization, etc. In this situation the CEO is simultaneously extracting monopoly rents (Tollison 1982, 2012; Bebchuk, Fried, &

Walker 2002; Bivens & Mishel 2013), collecting an efficiency wage (Shapiro & Stiglitz 1984; Sjostrom 1993), and imposing x-inefficiency on the firm (Leibenstein 1966, 1979). Note that these strategies for extracting income are not mutually exclusive but largely represent different ways of viewing and describing the same behavior.

A Theory of CEO Compensation

This section constructs a general economic theory of CEO compensation, building on conventional labor-market theory, imperfect competition, efficiency wage theory, and drawing some insights from behavioral economics to explain observed regularities along with apparent anomalies. A comprehensive theory of compensation should be built on the reasons why it may appear advantageous to highly-compensate, or even over-compensate CEOs, who have the maximum ability to define their own role, justify extraordinary compensation, and extract monopoly rents from the revenue generated by all the factors of production they control (Fama 1980). The scarcity of veteran CEOs contributes to making many of them monopoly suppliers of leadership and entrepreneurial planning, much like unionized workers in a closed shop. Markets for CEO talent are highly segmented (Cremers & Grinstein 2014), and clearly there is only one CEO in each firm (Figure 1). The next larger group of managers are the top management team (TMT) who are more specialized but face a more competitive labor market (Carpenter, Geletkanycz, & Sanders 2004; Marcel 2009). Thus conventional labor market theory explains why CEOs should be able to command relatively high compensation, simply based on the restricted supply in relation to demand.

The CEO's unique leadership role ensures they can exercise the greatest possible monopoly power within the firm. Their ability to extract monopoly rents may be further enhanced by unique professional or technical qualifications as well as board preferences for incumbent CEOs (Fama 1980). CEO compensation can be illustrated in a labor-supply—labor-demand framework, (Figure 2) where W represents CEO compensation on the vertical axis. L on the horizontal axis represents the quantity of executive services the firm purchases. Supply and demand in this context are unique for each firm and CEO. The CEO's Supply curve S represents their marginal cost (MC) of rendering additional service to the firm, factoring in the CEO's subjective disutility, desire for leisure, opportunity costs, etc. (Smit & Barber 2016). The firm's Demand curve D represents the declining marginal benefit to the firm of additional CEO leadership and entrepreneurial services.

However, consider what happens if the CEO is a monopolist or monopolistic-competitive supplier, so the marginal revenue (MR) curve slopes downward faster than the firm's demand curve, because marginal revenue is the product of W and L, with W falling as L increases. Governing boards' and hiring committees' strong preference for incumbent CEOs supports this view (Darrough & Melumad 1995; Ryan & Wiggins 2001; Bebchuk, Fried, & Walker 2002; Milbourn 2003; Terviö 2008; Edmans & Gabaix 2011; Banker et al 2013; Elson & Ferrere 2013). Unlike a perfectly competitive labor market where the CEO could offer any quantity of services at the prevailing market wage, in a monopoly market the CEO must lower their asking wage W to induce the firm to purchase a greater quantity of their labor services L.

Monopolist CEOs maximize income where marginal revenue (MR) equals the firm's marginal cost (MC) represented by the supply curve for CEO services. The CEO's monopoly wage is determined by the whole height of the firm's demand curve, WM. This monopoly wage is always greater than the compensation to a perfectly competitive CEO supplier, WC, which might arise when there are

Figure 1

The CEO's Role in the Organization Confers Greater

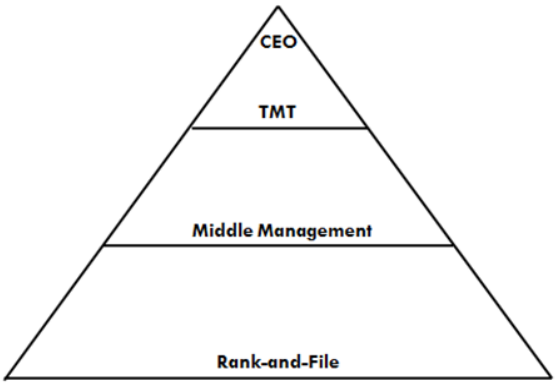
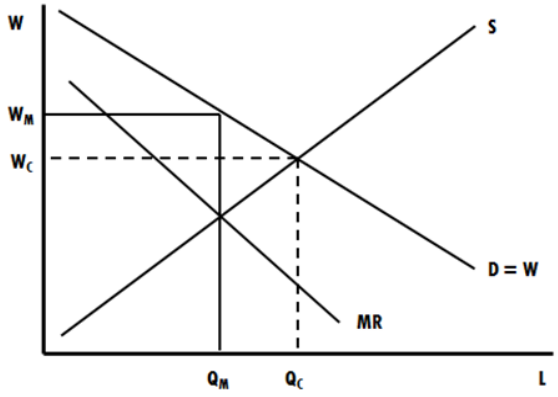


Figure 2

Monopoly/Monopolistic-competitive Market for CEO Services



numerous equally-attractive candidates for a particular position, and where CEO assignments are more generic and substitutable. Furthermore, the MR curve determines the CEO's MRP, and it is always below the firm's demand curve. This means that the wage captured by monopoly CEOs (WM) always exceeds their MRP.

Any premium in CEO compensation above the perfectly competitive wage constitutes an efficiency wage (Shapiro & Stiglitz 1984; Sjostrom 1993). Because CEOs can maintain their market power over the firm indefinitely, they can extract the efficiency wage indefinitely. This premium generally cannot be removed by market competition and does not rely on the firm being an industry leader. The supply of acceptable (i.e., incumbent) CEOs is small even without limitations imposed by industry- and firm-specific experience, technical knowledge, and human capital (Ryan & Wiggins 2001). This is the price firms pay for being unreceptive to potential candidates among the underemployed reserve army of aspiring CEOs.

Figure 3, showing the supply limited by the single incumbent, represents a more extreme case of the standard monopoly condition described by Figure 2 and clearly applies to CEOs in general. If the supply curve becomes vertical at a low level of CEO services, such as for a single CEO, that enables the model to explain even higher executive compensation. Here, the firm's only recourse is to alternative CEO candidates, which the literature tells us most firms resist most of the time (Ryan & Wiggins 2001; Terviö 2008; Banker et al 2013). Firms' unwillingness to take advantage of available candidates confers much of the monopoly power incumbents enjoy, with the remainder coming from reorganization (Rose & Shepard 1997; Cyert, Kang, & Kumar 2002; Bivens & Mishel 2013).

Backward-bending labor supply is generally thought to occur only in rare cases, for high-income, high-wealth individuals who value extra leisure more than additional income. This is very uncommon for most workers but precisely describes many CEOs (Milbourn 2003; Edmans & Gabaix 2011; Smit & Barber 2016)). Even higher compensation, with an even lower ratio of executive services provided to the firm, results from a backward-bending supply curve as illustrated in Figure 4.

However, note that this results in a correspondingly lower level of CEO services delivered to the firm, resulting in x-inefficiency where the firm pays more to receive less. This is obviously a situation boards should seek to avoid—it results in the firm receiving relatively little executive management, leadership, and entrepreneurial planning from the CEO, and at an especially high cost. This is consistent with findings that CEO compensation and performance are not highly correlated (Jensen & Murphy 1990). Essentially the firm is paying for the CEO's reputation and past performance (Milbourn 2003). Since the firm is not receiving sufficient current value, director intervention on behalf of the shareholders will be required.

As illustrated in Figure 5, if the CEO's backward-bending supply curve is flatter than the firm demand curve, there will be two equilibria. The lower equilibrium is stable as in Figures 3 and 4. However, the higher equilibrium is unstable, and if it is ever reached, any minor deviations between quantities supplied and demanded will not be self-correcting. Theoretically the monopolist CEO will be able to extract compensation from the firm equal to the vertical intercept of the firm's demand curve while providing zero managerial/entrepreneurial services—in effect, these CEOs have retired on the job, simultaneously maximizing income and deadweight loss, while eliminating the firm's consumer surplus. This is the most extreme,

Figure 3

Monopoly Supply of CEO Services becomes Vertical at Q_M

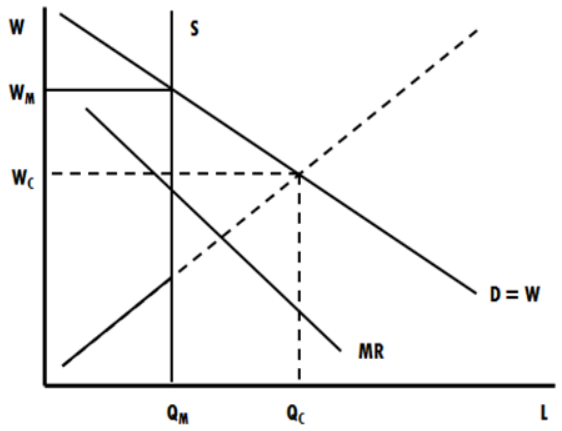


Figure 4

Supply of CEO Services Bends Backward due to Income Effect

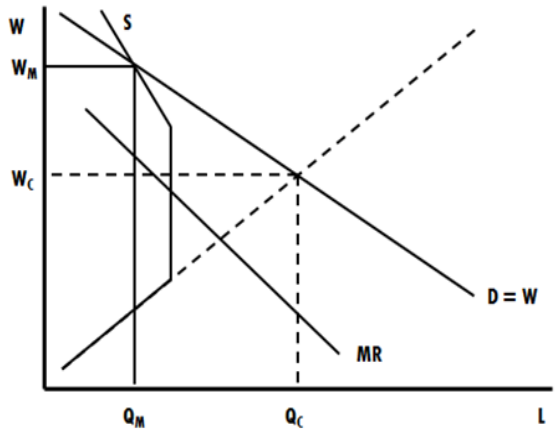
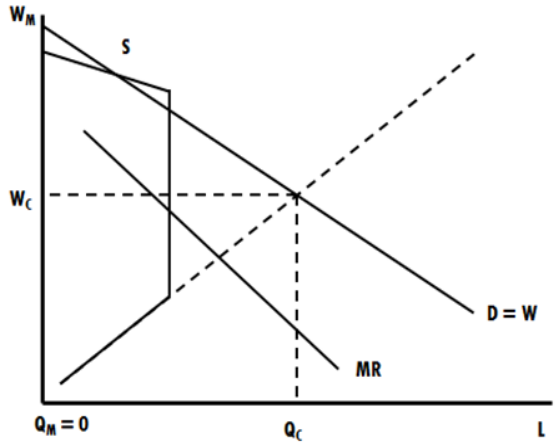


Figure 5

Supply of CEO Services Bends Backward with Stable and Unstable Equilibria



and hopefully very rare, case of a wealthy CEO with a strong preference for leisure requiring and receiving very high compensation (Edmans & Gabaix 2011; Smit & Barber 2016).

Thus, familiar microeconomic theory has little difficulty in explaining high CEO compensation.

Conclusion

Because the CEO controls allocation of and compensation to the firm's labor, land, and capital, they are often in a unique position to realize cost-savings and other efficiencies and it will be appropriate to compensate them with a share of any savings they deliver. The firm benefits similarly from savings on compensation for entrepreneurial planning and management services, but the CEO's incentive to economize on their own compensation is uniquely absent (Laschever 2013). CEOs routinely earn wages above their MRP and considering CEOs as monopoly suppliers of managerial and entrepreneurial services with the unique ability to reorganize the firm to strengthen their market power, suggests this situation may not be so exceptional. Economic theory has little difficulty explaining why executive-entrepreneurs with monopoly power over the firm can extract very high compensation. Monopoly extraction of revenue generated by other factors of production, particularly labor, is always a significant hazard that compensation committees and other fiduciary agents must guard against.

Individuals with strong leadership talent are best suited to direct the activities of others, enabling leaders to use the firm's scale and scope economies by applying their comparative advantage more widely. When leadership is rewarded for entrepreneurial planning, the firm's economic growth will likely be enhanced as talent flows to that activity (Kirzner 1984a, 1984b, 1997), but if the firm's compensation structure better rewards bureaucratic rent-seeking by less efficient monopoly CEOs, leadership talent will flow to that income source, causing firm growth to suffer (Fama 1980; Balkin & Gomez-Mejia 1990; Holmstrom 1999; Bebchuk, Fried, & Walker 2002; Bivens & Mishel 2013).

This paper has presented an argument that CEOs can earn efficiency wages (Sjostrom 1993), potentially exceeding their MRP. This is generally true for CEOs, not only those of industry leaders, and unlike normal efficiency wages paid to rank-and-file employees, CEOs can extract these abnormally-high wages indefinitely. Unlike for rank-and-file employees and middle management, CEOs' labor-supply curves can bend backwards. This can result in their receiving even greater income in return for lower levels of leadership and management, imposing x-inefficiency on the firm.

New CEOs who bring in a new executive team generally need to reorganize the firm to optimize their team's efficiency (Carpenter, Geletkanycz, & Sanders 2004; Marcel 2009). However, CEOs can also earn additional income by reorganizing the firm to maximize their own monopoly power. This is a further problem taxing the vigilance of directors and compensation committees. Firms' status quo bias and strong aversion to the risk of trying out less-experienced CEO candidates makes them reluctant to consider candidates who have not already served as CEO elsewhere. This unnaturally delimits their pool of qualified applicants and increases incumbents' monopoly power.

References

Aboody, D., & Kasznik, R. (2000). CEO stock option awards and the timing of corporate voluntary disclosures. *Journal of Accounting & Economics, 29*(1), 73-100.

Anderson, S., & Pizzigati, S. (2012). *Pay-cap populism*. In: Rosenthal, Beth (ed.) Are Executives Paid Too Much? Greenhaven Press.

Arya, A., & Mittendorf, B. (2005). Offering stock options to gauge managerial talent. Journal *of Accounting and Economics, 40*, 189-210.

Baber, W. R., Janakiraman, S. N., & Kang, S. (1996). Investment opportunities and the structure of executive compensation. *Journal of Accounting and Economics, 21*, 297-318.

Bakija, J., Cole, A., & Heim, B. T. (2012). *Jobs and income growth of top earners and the causes of changing income inequality: Evidence from U.S. tax return data*. Williams College, Department of Economics.

Balkin, D. B., & Gomez-Mejia, L. R. (1990). Matching compensation and organizational strategies. *Strategic Management Journal, 11*, 153-169.

Banker, R. D., Darrough, M. N., Huang, R., & Plehn-Dujowich, J. M. (2013). The relation between CEO compensation and past performance. *Accounting Review, 88*(1), 1-30.

Bebchuk, L. A., & Fried, J. M. (2004a). Stealth compensation via retirement benefits. *Berkeley Business Law Journal, 1*, 291-325.

Bebchuk, L. A., & Fried, J. M. (2004b). *Pay without Performance: The Unfulfilled Promise of Executive Remuneration*. Harvard University Press.

Bebchuk, L. A., & Fried, J. M. (2005). Pay without performance: overview of the issues. *Journal of Applied Corporate Finance, 17*(4), 8-22.

Bebchuk, L. A., & Fried, J. M. (2010) How to tie equity compensation to long-term results. *Journal of Applied Corporate Finance, 22*(1),

Bebchuk, L., Fried, J. M., & Walker, D. I. (2002). Managerial power and rent extraction in the design of executive compensation. *University of Chicago Law Review, 69*(3), 751-846.

Bebchuk, L. A., & Grinstein, Y. (2005). The growth of executive pay. *Oxford Review of Economic Policy, 21*(2), 283-303.

Bertrand, M., & Mullainathan, S. (2000). Agents with and without principals. *American Economic Review, 90*, 203-208.

Bertrand, M., & Mullainathan, S. (2001). Are CEOs rewarded for luck? The ones without principles are. *Quarterly Journal of Economics, 116*(3), 901-932.

Bivens, J., & Mishel, L. (2013). The pay of corporate executives and financial professionals as evidence of rents in top 1 percent incomes. *Journal of Economic Perspectives, 27*(3), 57-78.

Bizjak, J. M., Lemmon, M. L., & Naveen, L. (2008). Does the use of peer groups contribute to higher pay and less efficient compensation? *Journal of Financial Economics, 90*(2), 152-168.

Bogle, J. C. (2008) Reflections on CEO compensation. *Academy of Management Perspectives, 22*(2), 21-25.

Brenner, M., Sundaram, R. K., & Yermack, D. (2000). Altering the terms of executive stock options. *Journal of Financial Economics, 57*, 103-128.

Callaghan, S. R., Saly, P. J., & Subramaniam, C. (2004). The timing of option repricing. *Journal of Finance, 59*(4), 1651-1676.

Carpenter, M. A., Geletkanycz, M. A., & Sanders, W. G. (2004). Upper echelons research revisited: antecedents, element, and consequences of top management team composition. *Journal of Management, 30*(6), 749-788.

Carter, M. E., & Lynch, L. (2001). An examination of executive stock option re-pricing. *Journal of Financial Economics, 61*, 207-225.

Chance, D, Kumar, R., & Todd, R. (2000). The 're-pricing' of executive stock options. *Journal of Financial Economics, 57*, 129-154.

Chen, H., & Leng, F. (2004). Pay-performance sensitivity in a heterogeneous managerial labor market. *Journal of Management Accounting Research, 16*(1), 19-33

Cremers, M., & Grinstein, Y. (2014). Does the market for CEO talent explain controversial CEO pay practices? *Review of Finance, 18*(3) 921-960.

Crook, C. (2012) *Shameless gougers*. In: Rosenthal, Beth (ed.) Are Executives Paid Too Much? Farmington Hills, Michigan: Greenhaven Press.

Cyert, R., Kang, S., & Kumar, P. (2002). Corporate governance, takeovers, and top-management compensation: theory and evidence. *Management Science, 48*, 453-469.

Darrough, M., & Melumad, N. (1995) Divisional versus company-wide focus: the trade-off between allocation of managerial attention and screening of talent. *Journal of Accounting Research, 33* (Supplement), 65-94.

DiNardo, J., Fortin, N., & Lemieux, T. (1996) Labor market institutions and the distribution of wages, 1973-1992: a semiparametric approach. *Econometrica, 64*(5), 1001-1044.

Edmans, A., & Gabaix, X. (2011). The effect of risk on the CEO market. *Review of Financial Studies, 24*(8), 2822-2863.

Elson, C. M., Ferrere, C. K. (2013). Executive superstars, peer groups and overcompensation: cause, effect and solution. *Journal of Corporation Law, 38*(3) 487-531.

Fama, E. F. (1980). Agency problems and the theory of the firm. *Journal of Political Economy, 88*(2), 288-307.

Fernandes, N. G., Ferreira, M. A., Matos, P. P., & Murphy, K. J. (2012). Are U.S. CEOs paid more? new international evidence. *Review of Financial Studies, 26*(2), 323-367.

Fried, J. M. (1998). Reducing the profitability of corporate insider trading through pretrading disclosure. *Southern California Law Review, 71*, 322-323.

Fried, J. M. (2000). Insider signaling and insider trading with repurchase tender offers. *University of Chicago Law Review, 67* (2), 421-477.

Gabaix, X., & Landier, A. (2008). Why has CEO pay increased so much? Quarterly Journal of Economics, 123(1), 49-100.

Gan, H., & Park, M. S. (2016). Are more able CEOs getting more compensated? Evidence from the pay-for-performance sensitivity of equity-based incentives. *Advances in Accounting, 34*, 64-76.

Gibbons, R., & Murphy, K. J. (1992). Optimal incentive contracts in the presence of career concerns: Theory and evidence. *Journal of Political Economy, 100*(3), 468-505.

Gordon, R. J., & Dew-Becker, I. (2007). Selected issues in the rise of income inequality. *Brookings Papers on Economic Activity, 2007*(2), 169-190.

Goyal, Vidhan K., & Park, Chul W. (2002). Board leadership structure and CEO turnover. *Journal of Corporate Finance, 8*, 49-66.

Graham, J. R., Li, S., & Qiu, J. (2012). Managerial attributes and executive compensation. *Review of Financial Studies, 25*(1), 144-186.

Graham, M., Dennis, R., Thomas A., & Dugan, D. (2008). *Effective Executive Compensation: Creating a Total Rewards Strategy for Executives*. American Management Association.

Hacker, J. S., & Pierson, P. (2010). *Winner-Take-All Politics: How Washington Made the Rich Richer—and Turned Its Back on the Middle Class*. Simon & Schuster.

Hallock, K. (1997). Reciprocally interlocking boards of directors and executive compensation. *Journal of Financial and Quantitative Analysis, 32*, 332-344.

Hallock, K. (1999). *Dual agency: Corporate boards with reciprocally interlocking relationships*. In: Carpenter, Jennifer, & Yermack, David (eds.) Executive Compensation and Shareholder Value: Theory and Evidence (Boston: Kluwer Academic Publishers).

Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: the organization as a reflection of its top managers. *Academy of Management Review, 9*(2), 193-206.

Henderson, A.D., Miller, D., & Hambrick, D.C. (2006). How quickly do CEOs become obsolete? Industry dynamism, CEO tenure and company performance. *Strategic Management Journal, 27*(5), 447-460.

Himmelberg, Charles P., & Hubbard, R. Glenn (2000). Incentive *pay and market for CEOs: an analysis of pay-for-performance sensitivity*. Working paper, Columbia University.

Holmstrom, B. (1999). Managerial incentive problems: a dynamic perspective*. Review of Economic Studies, 66* (1), 169-182.

Jarque, A. (2008). CEO compensation: trends, market changes, and regulation. *Economic Quarterly, 94*(3), 265-300.

Jensen, Michael C., & Meckling, William H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305-360. 10.1016/0304-405X(76)90026-X

Jensen, Michael C., & Murphy, Kevin J. (1990). Performance pay and top-management incentives. *Journal of Political Economy, 98* (2), 225-264.

Kahle, Kathleen M., & Shastri, Kuldeep (2004). Executive loans. *Journal of Financial and Quantitative Analysis, 39*(4), 791-811.

Kaplan, Steven N. (2008). Are U.S. CEOs overpaid? *Academy of Management Perspectives, 22*(2), 5-20.

Kaplan, Steven N., & Rauh, Joshua (2013). It's the market: the broad-based rise in the return to top talent. *Journal of Economic Perspectives, 27*(3), 35-56.

Kerr, Steven (1975). On the folly of rewarding A, while hoping for B. *Academy of Management Journal, 18*, 769-783.

Kerr, Steven (1995). On the folly of rewarding A, while hoping for B. *Academy of Management Executive, 9*(1), 7-14.

Kirzner, Israel M. (1973). *Competition and Entrepreneurship*. University of Chicago Press.

Kirzner, Israel M. (1978). The Entrepreneurial Role in Menger's System. *Atlantic Economic Review, 6*(4), 31-45. Reprinted (2015) in: Boettke, Peter J., Sautet, Frédéric (eds.) Austrian Subjectivism and the Emergence of Entrepreneurship Theory. (pp. 151-174) Indianapolis: Liberty Fund.

Kirzner, Israel M. (1984a). *Prices, the Communication of Knowledge, and the Discovery Process*. In: Leube, K.R., & Zlabinger, A.H. (eds.) The Political Economy of Freedom: Essays in Honor of F.A. Hayek. Amsterdam: Philosophia Verlag. Reprinted (1992) in: Kirzner, The Meaning of Market Process. (pp. 139-151) London: Routledge.

Kirzner, Israel M. (1984b) Economic Planning and the Knowledge Problem. *Cato Journal, 4*(2). Reprinted (1992) in: Kirzner, The Meaning of Market Process. (pp. 152-162), Routledge.

Kirzner, Israel M. (1997). Entrepreneurial Discovery and the Competitive Market Process: An Austrian Approach. *Journal of Economic Literature, 35*(1), 60-85. Reprinted (2017) in: Boettke, Peter J., & Sautet, Frédéric (eds.) Competition, Economic Planning, and the Knowledge Problem. (pp. 323-360), Liberty Fund.

Kuznets, Simon (1955). Economic growth and economic inequality. *American Economic Review, 45*(1), 1-28.

Lambert, Richard A., Larcker, David F., & Wegelt, Keith (1993). The structure of organizational incentives. *Administrative Science Quarterly, 38*, 438–461.

Laschever, Ron A. (2013). Keeping up with CEO Jones: Benchmarking and executive compensation. *Journal of Economic Behavior & Organization, 93*(C), 78-100.

Lawler, E. E. (III) (1990). *Strategic Pay: Aligning Organizational Strategies and Pay Systems.* Jossey-Bass.

Lawler, Edward E. (III) (2012). *Fixing executive compensation: right time, wrong approach*. In: Rosenthal, Beth (ed.) Are Executives Paid Too Much? Greenhaven Press.

Lax, David A., Sebenius, James K. (1991). Negotiating through an agent. *Journal of Conflict Resolution, 35* (3), 474-493. 10.1177/0022002791035003004.

Lazear, E. P. (2000). The power of incentives. *American Economic Review, 90*(2), 410-414.

Leibenstein, H. (1966). Allocative efficiency vs. "x-efficiency." *American Economic Review, 56*(3), 392-415.

Leibenstein, Harvey (1978a). *General X-Efficiency Theory and Economic Development*. Oxford University Press.

Leibenstein, Harvey (1978b). X-inefficiency exists: a reply to an exorcist. *American Economic Review, 68*, 208.

Leibenstein, H. (1979). *The general x-efficiency paradigm and the role of the entrepreneur*. In: Mario Rizzo (ed.) Time, Uncertainty, and Disequilibrium. Heath, pp. 127-139.

Leibenstein, H. (1983). Property rights and x-efficiency: Comment. *American Economic Review, 83*, 831-842.

Leibenstein, Harvey (1987). *Inside the Firm: The Inefficiencies of Hierarchy*. Harvard University Press.

Marcel, J. (2009). Why top management team characteristics matter when employing a chief operating officer: A strategic contingency perspective. *Strategic Management Journal, 30*(6), 647-658.

McNeil, K., & Thompson, J. D. (1971). The regeneration of social organizations. *American Sociological Review, 36*(4), 624-637.

Mehran, H. (1995). Executive compensation structure, ownership, and firm performance. *Journal of Financial Economics, 38* (2), 163-184.

Milbourn, T. T. (2003). CEO reputation and stock-based compensation. *Journal of Financial Economics, 68*(2), 233-262.

Miller, D. (1991). Stale in the saddle: CEO tenure and the match between organization and environment. *Management Science, 37*(1), 34-52.

Mishel, L., & Davis, A. (2014). *CEO pay continues to rise as typical workers are paid less*. Issue Brief no. 380. Economic Policy Institute.

Mulligan, R. F. (2019). *Executive Compensation*. American Institute for Economic Research.

Murphy, K. M., Shleifer, A., & Vishny, R. W. (1991). The allocation of talent: implications for growth. *Quarterly Journal of Economics, 106*(2), 503-530.

Oyer, P. (2004). Why do firms use incentives that have no incentive effects? *Journal of Finance, 59*(4), 1619-1649.

Pollock, T., Fischer, H., & Wood, J. (2002). The role of power and politics in repricing executive options. *Academy of Management Journal, 45*, 1178.

Rose, N., & Shepard, A. (1997). Firm diversification and CEO compensation: managerial ability or executive entrenchment? RAND *Journal of Economics, 28*(3), 489-514.

Ryan, H. E., & Wiggins, R. A. (2001). The influence of firm- and manager-specific characteristics on the structure of executive compensation. *Journal of Corporate Finance, 7*(2), 101-123.

Sanders, W. G. (2001). Behavioral responses of CEOs to stock ownership and stock option pay. *Academy of Management Journal, 44*(3), 477-492.

Seyhun, H. N. (1998) Investment *Intelligence from Insider Trading.* MIT Press.

Shapiro, C., & Stiglitz, J. E. (1984). Equilibrium unemployment as a worker discipline device. *American Economic Review, 74* (3), 433-444.

Sjostrom, W. (1993) Job security in an efficiency wage model. *Journal of Macroeconomics, 15*(1), 183-187.

Smit, B. W., & Barber, L. K. (2016). Psychologically detaching despite high workloads: the role of attentional processes. *Journal of Occupational Health Psychology, 2*1(4), 432-442.

Stiglitz, J. E. (2012) *The Price of Inequality*. W.W. Norton.

Terviö, M. (2008) Superstars and mediocrities: market failure in the discovery of talent. *Review of Economic Studies, 76*(2), 21-49.

Thomas, R. S., & Martin, K. J. (2000). The determinants of shareholder voting on stock option plans. *Wake Forest Law Review, 35*, 31-82.

Tollison, R. D. (1982). Rent seeking: A survey. *Kyklos, 35*(4), 575-602.

Tollison, R. D. (2012). The economic theory of rent seeking. *Public Choice, 152*(1/2), 73-82.

Toscano, P. (2014). *Portfolio's Worst American CEOs of All Time*. https://www.cnbc.com/2009/04/30/Portfolios-Worst-American-CEOs-of-All-Time.html

Yermack, D. L. (1995). Do corporations award CEO stock options effectively? *Journal of Financial Economics, 39*(2-3), 237-269.

Yermack, D. (1996). Higher market valuation of companies with a small board of directors. *Journal of Financial Economics, 40* (1996), 205.

Yermack, D. (1997). Good timing: CEO stock option awards and company new announcements. *Journal of Finance, 52*, 449-477.

Zajac, E. J., & Westphal, J. D. (1996). Who shall succeed? How CEO/board preferences and power affect the choice of new CEOs. *Academy of Management Journal, 39*(1), 64-90.

Robert F. Mulligan (robtmulligan@gmail.com)
