

**THE EMPIRICAL LITERATURE
ON EXECUTIVE PAY:
CONTEXT, THE PAY-PERFORMANCE
ISSUE AND FUTURE DIRECTIONS**

Alistair Bruce and Rodion Skovoroda

Nottingham University Business School

May 2015

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The logo for the High Pay Centre, featuring the words "high", "pay", and "centre" stacked vertically in a bold, sans-serif font. A thick orange horizontal line is positioned below the word "centre".

The Empirical Literature on Executive Pay: Context, the Pay-Performance Issue and Future Directions

Introduction

The last thirty years has witnessed a striking volume and diversity of academic enquiry in the field of executive remuneration. In this paper, we offer a review of the literature on particular aspects of executive pay, centring on the nature of the pay-performance relationship, principally as evidenced by empirical studies of executive pay in the UK and USA, but also embracing related themes of enquiry.

The review is organised as follows. By way of context, we begin by explaining briefly the structure of pay in UK corporations and its evolution over the last three decades. We then outline how the processes by which pay arrangements are established and overseen within companies have changed and note the increased transparency in the reporting of pay since the 1980s. This leads to a discussion of the forces which motivated the sustained surge in the empirical study of pay from the mid-1980s in terms of factors such as the turbulence of pay structures, the emergence of corporate governance as an area of academic enquiry and the tension between alternative theoretical perspectives on remuneration. The main body of the review begins with a consideration of the economic researcher's perspective on executive pay, where outcomes are seen as shaped by competing concepts and influences such as optimal contracting on the one hand and rent extraction on the other, as well as factors such as firm size, complexity and performance. These forces interact in a market framework characterised by various imperfections, and most importantly the market's inability to reliably observe executive talent, at least on an *ex ante* basis. In the core of the literature review which follows, we focus on the pay-performance relationship which dominates the body of empirical work, and explain the principal alternative measures explored, pay performance sensitivity and pay performance elasticity. We review the most significant contributions and identify a number of key moderating variables which have emerged as influential in the empirical relationship. These include the impact of institutional ownership, the influence of boards, directors' networks, the role of external pay consultants and increased shareholder activism. These factors enable us to see the pay-performance relationship within a wider governance context.

A notable feature of the literature as a whole is the absence of strong consensus in terms of the pay-performance relationship, a factor explained both in terms of the vagaries and

inefficiencies of the executive labour market and the diversity of methods employed by academic researchers in exploring it.

The review concludes by identifying how the dominant focus on the pay-performance relationship has, in recent years, given way to a more varied empirical agenda on executive pay. We highlight the main emergent themes and suggest that they constitute a strong platform for a rich and sustainable research programme.

Executive Pay, Pay Setting Processes and Pay Transparency in the UK: Structure and Evolution

In this section, by way of context, we explain how the components of executive reward, the processes involved in deciding remuneration arrangements and the transparency of pay have changed over the period covered by this literature review. We also explain the coincidence of factors which led to a sea-change in executive compensation in the UK from the mid -1980s, and which, in turn, define the starting point for our review.

Contemporary practice in relation to the compensation of UK executives invariably embodies a range of reward components; principally salary, annual bonus, various forms of stock-based compensation such as executive share options and long-term incentive plans, pension entitlement and sundry in-kind benefits or perquisites. Whilst some of these elements, notably salary and annual bonus, are long-established, stock-based compensation has emerged and developed as a significant feature only in the last thirty years. During this period, however, it has frequently accounted for a majority share of the reward of senior executives, with an often transformative impact on the level of individual executives' pay. Indeed, the emergence of stock-based compensation alone has motivated much of the empirical investigation of executive pay, as researchers seek, in particular, to understand the impact of its use on the pay-performance relationship. What is particularly striking about the impact of stock-based compensation over the last three decades is that, by contrast, the period from 1945 through to the early-mid 1980s was one of notable stability in terms of pay components and steady but essentially incremental change in pay levels.

The last thirty years have also witnessed radical change in the pay-setting arrangements within UK corporations. The 1980s saw the gradual adoption of remuneration, or compensation, committees in large UK corporations, though Conyon (1997) observes that by 1990 around 58% of leading firms had yet to establish such a committee, a figure broadly supported by Main and Johnston (1992). Where remuneration committees did operate, they

were invariably populated by a mix of executive and non-executive directors, with the former, of course, having direct input into decisions on their own remuneration. Conyon (1997) observed that in 1995, of 287 board committees surveyed, only marginally fewer than half still featured executive representation. Since the mid-nineties, a major trend has been the distancing of the executive group from the pay-setting process with the increasing independence of remuneration committees in establishing pay levels and structures, recognising the obvious conflict of interest in earlier arrangements.

Finally, in setting the context for our review, it is important to note that there is now generally much greater transparency of executive reward than existed thirty years ago. In the mid-1980s, researchers in the field of executive remuneration were forced either to make heroic assumptions regarding levels and forms of executive pay, or to invest significant resource in the detailed retrieval of pay data which were often embedded in unpublished corporate documents or records. For example, as the use of stock-based compensation increased, at first via the executive share option (ESO), details of awards and holdings were only available via registers of directors' interests, where unevenness of reporting protocol required significant and careful interpretation in order to reveal details of individual holdings and their value. Following the Greenbury Committee's endorsement of more bespoke, relative performance arrangements for stock-based compensation such as long-term incentive plans (LTIPs), a further challenge was to reveal the identity of companies selected for peer group comparison of performance, details which companies were often reluctant to make public. Successive governance-related reports, changes to stock exchange listing requirements and governance codes of practice have served to improve the transparency of pay structures and processes, but there remains an issue regarding the availability of reliable and comprehensive data, with disclosure requirements and conventions tending to lag behind successive innovations in pay component. A particular difficulty in sourcing reliable data has been the practice whereby executives' rewards are grouped for reporting purposes, which confounds individual calculations. This has meant that many studies have used, as the focus for their work, the experience of the Chief Executive Officer (CEO) for whom more explicit and detailed disclosure has tended to be available, rather than broader scrutiny of experience across the board as a whole.

The mid-1980s: a watershed in executive pay

The mid-1980s have already been described as a period during which there were significant changes in the nature and components of, and processes relating to, executive pay. This section begins by explaining how a combination of factors operating during this period

created a context and incentive for change, which then initiated an era of vigorous activity in the executive pay arena. This, in turn, fuelled an unprecedented interest in issues around executive reward, which engaged academic researchers as well as the practitioner, shareholder, regulatory and policymaking communities, and the wider public.

As noted above, the most significant change to compensation arrangements in UK firms was the arrival of stock-based compensation in the form of the ESO, the British variant of the American stock option. Its uptake in the UK reflected a growing awareness of the competitive nature of the international executive market and the need to replicate aspects of US practice which meant that US packages were typically significantly more valuable than UK equivalents. The appeal of the ESO as a pay component was fuelled by both a buoyant equity market and, for a short period, by the introduction of tax advantages in the 1984 Finance Act, which allowed recipients to take advantage of the differential between higher rate income tax and capital gains tax in managing tax exposure to option-related gains. Inevitably, the arrival of a new pay component caught the attention of academic researchers who sought to explore its impact on both pay levels and the pay-performance relationship. Empirical investigation was stimulated by the emergence of quite distinct and competing theoretical lenses which invited the view that pay innovations were principally motivated by, alternatively, executive self-interest or a desire to promote greater alignment between the interests of executives and shareholders. These competing insights are discussed more extensively below. Executive share options also attracted media attention, with reports of unprecedented levels of option-related reward associated with leading industry figures such as Ralph Halpern of the Burton Group and Cedric Brown of British Gas. This latter case attracted public concern that executives of newly-privatised concerns were profiting disproportionately from the sale of state assets. The privatisation programme of the early eighties also had the effect of raising public awareness and experience of shareholding and of the concept and practical features of corporate governance. Concerns over the effect of new pay components and the processes for setting pay were already being expressed in the 1980s, led by the institutional shareholding community and couched within the wider context of the health of UK corporate governance. These concerns were to give rise to a stream of quasi-official enquiries and reports throughout the 1990s and beyond, which concerned themselves with the broader architecture of governance, but with a particular focus on the composition and determinants of pay. In many respects, therefore, the mid-eighties marked the divide between an era of stability and continuity in the structure of pay and pay-setting arrangements, and an era of significant turbulence in terms of pay components and levels, and pay determination. The following thirty years would see continuous change in the relative significance of pay components, driven by new pay instruments, followship,

changing regulatory arrangements and the shifting fortunes of the equity market. The mid-1980s therefore marked a turning point in awareness of and interest in executive pay and the issues surrounding it.

The CEO labour market, optimal contracting, and rent-extraction

This section offers a brief introduction to the theoretical perspectives and insights, developed by academic economists, which frame the field of empirical enquiry into executive reward in general. As such, it sets the context for the discussion of the pay-performance literature which follows. It also acknowledges that whilst the pay-performance focus, fuelled especially by academic and wider interest in the possible absence of a link, is an important empirical theme, it forms just one strand of enquiry within a much larger field of research.

Optimal contracting theories suggest that an idealised, competitive and efficient market would result in pay arrangements for CEOs and other senior executives that reflect a complex set of factors: the marginal products of managerial effort (jointly determined by talent and experience, the size of the firm that employs the CEO and the complexity of its business); the 'noise-to-signal' ratio of the performance measure (pay for performance is less relevant when performance measures are less reliable); as well as the individual's wealth, risk aversion, the proximity to retirement, and other factors that could affect the opportunity costs of working elsewhere.

Since senior executive decisions affect the entire firm, talent has greatest effect in larger firms where it can be "rolled out" or "leveraged" to achieve economies of scale. Theory suggests that, if CEO talent were freely observable and markets were fully competitive, rational firms competing for talent would pay their CEOs just enough to prevent them from being poached by relatively smaller competitors. The arms-length bargaining between CEOs and firms would ensure that the top talents would be employed by the largest firms, where talent is most productive - an economically efficient outcome (Gabaix and Landier, 2008; Tervio, 2008). As a result, a relatively small dispersion in talent could, potentially, justify large pay differences between the top earners and the rest, an outcome readily observed in the US, UK, and internationally. Another straightforward prediction of the perfect market is that a one percent across-the-board increase in the market capitalisation of all firms in the country should result in a one percent increase in average CEO pay as the competition for talent intensifies.

While this idealized market might deviate in detail from the actual operation of executive labour markets, it nevertheless helps explain a number of key empirical

regularities. Consistent with the market-based theory of pay, Gabaix and Landier (2008) found that the six-fold increase in U.S. CEO pay since 1980 can be explained by the six-fold growth in firm size over the same period. Kaplan and Rauh (2010) report that the recent growth in US CEO pay is not inconsistent with income trends among top performers in other professional occupations that are characterised by strong economies of scale in talent such as venture capital fund managers, corporate lawyers, professional athletes, and celebrities. In short, available empirical literature is *not inconsistent* with the suggestion that the recent well-documented growth in *average* CEO pay has been mostly driven by perfectly legitimate factors to do with market demand for “scalable” talent.

It is, of course, unlikely that the CEO labour market is fully efficient and perfectly competitive. The literature suggests a number of important limitations to the optimal-contracting view. First, executive labour markets lack transparency: boards of directors are usually insufficiently informed of the availability of all potential candidates and, generally, CEO talent is not easily measurable. Tervio (2009) argues that in many professional activities, including top management, talent is naturally scarce, and the labour market fails to discover most of the available talent. It is costly to experiment with first-time CEOs. To the extent that ‘discovered’ talents quickly become public knowledge, competitors are expected to free-ride on talent discovery by poaching successful first-time CEOs from the firms that ‘discovered’ them. The end result is that firms play it safe, by bidding up the wages of the revealed pool of incumbent CEOs, rather than by experimenting with new talents as often as would be socially efficient. This form of market inefficiency is particularly worrying, as studies that have tried to calibrate CEO talent empirically find relatively little implied variation in ability among top CEOs (Gabaix and Landier, 2008; Tervio, 2008; Jung and Subramanian, 2015).

Secondly, empirical research finds substantial evidence to suggest that incumbent CEOs in some cases are able to exert undue influence over the pay-setting process for their own financial interest. Individual research papers that report empirical evidence in support of the suggestion that more powerful CEOs (*vis-à-vis* their boards) enjoy higher levels of pay are almost too many to mention. In a recent meta-analysis of CEO pay literature, van Essen, Otten, and Carberry (2015) reviewed the results of 219 U.S.-based executive pay studies published between 1962 and 2009 and concluded that the weight of the empirical evidence suggests overwhelmingly that CEO power and, in particular, CEO-Chairman duality, is positively associated with CEO pay. A particularly suspect pay practice that has received considerable attention both in the academic literature and in the press is that of “option backdating” – the practice of opportunistic (retroactive) timing of executive stock option grants, knowingly or otherwise authorised by corporate boards. Empirical research suggests

that the practice of option backdating was widespread in the 1990s and early 2000s in the US and had the ability to deliver significant gain to the eligible executives (Lie, 2005; Bebchuk, Grinstein, and Peyer, 2010). Consistent with a view that option backdating is a manifestation of other, deeper, agency problems, Frankforter, Becton, Stanwick, and Coleman (2012) find that firms with active nomination and compensation committees have a lower likelihood of option backdating. Perhaps not surprisingly, stock prices reacted negatively to news on option backdating investigations by the SEC. Efendi, Files, Ouyang, and Swanson (2013) document higher forced turnover rates for CEOs and CFOs following option backdating allegations, and Ertimur, Ferri, and Maber (2012) report related reputation penalties for the non-executive members of compensation committees for their role in poor oversight of executive pay.

Thirdly, a small but growing number of studies emphasises governance externalities: weakly governed firms impose a cost on other firms by bidding up CEO pay (Acharya and Volpin, 2010, Dicks, 2012). As firms compete for scarce CEO talent, the resulting rent transfers over and above arm's-length-contracted pay are most likely to accrue to the CEOs of the largest firms. To the extent that a well-paid CEO "makes the company look strong", an upward bias in executive pay may also stem from corporate myopia. In a plausible scenario studied by Hayes and Schaefer (2009), myopic firms that value short-term share price performance have incentives to distort the CEO wage upward in order to temporarily increase the market perception of the firms' outlook and value. Hayes and Schaefer show that wage distortion is an equilibrium outcome if the level of corporate myopia is sufficiently high.

An alternative and, arguably, competing theory of CEO pay that summarises some of the concerns outlined above is proposed by Bebchuk and Fried (2004). The rent-extraction theory of CEO pay asserts that both internal (firm-specific) and external (market-based) mechanisms of corporate governance are too weak as to ensure arm's-length contracting over CEO pay. Powerful CEOs are expected to maintain their control over the board by selecting and retaining board members with experience on passive, compliant boards and by excluding those with experience in more active and challenging boards, potentially altering the nature of the labour market for executives and non-executives alike (Zajac and Westphal, 1996). The central prediction of the rent-extraction theory is the notion of "pay camouflage" - the tendency of powerful CEOs and weak boards to distort pay schemes in order to camouflage the total cost of the package and hence manage the risk of public "outrage". Bruce and Skovoroda (2013) study the structure and the determinants of CEO bonus awards in the UK financial sector immediately prior to the financial crisis of 2008/09 and document a general tendency for greater complexity in scheme design in terms of the

award criteria. They find strong evidence that bonus payouts are linked to firms' profitability, in accordance with the optimal contracting view. On the other hand, complex bonus structures are associated with higher bonus payouts after the effects of firm performance and size are appropriately accounted for - thereby lending some weight to the executive power argument in the UK context.

The rent-extraction theory of CEO pay and the demand-for-talent story, of course, are not mutually exclusive. In a recent review, Frydman and Jenter (2010) argue that no single theory of CEO pay is fully consistent with the empirical data. Where possible, a framework that brings the competing theories together is therefore desirable. Van Essen, Otten, and Carberry report that the share of variance in CEO pay explained by CEO power indicators is qualitatively similar to the share of variance explained by firm performance (more on pay-performance link later) in the sense that both effects explain relatively little. They conclude that "firm size is far more important for explaining CEO compensation." This is, arguably, the most robust empirical finding in pay research to date, consistent over a very large number of individual studies.

This brings us to a very important point in this debate. As discussed above, the ability of the optimal contracting theories to rationalize firm size effect in CEO pay (the effect that is, empirically, very large) is based on market ability to reliably measure and "sort" "scalable" CEO talent. Yet, we know very little about labour market efficiency in identifying talented CEOs. Indeed, devising a controlled scientific experiment that would be able to sort those CEOs who are indeed paid for their contribution to firm value from those who are most definitely overpaid is challenging and, generally, impossible. The only "experiments" available to the researchers are "natural" experiments where the experimental and control conditions are determined by nature, yet where the process that governs the assignment across the "treatment" and "control" groups is random or close to being random. Recently, Nguyen and Nielsen (2014) published the results of a natural (albeit tragic) experiment on the link between CEO pay and firm performance. Nguyen and Nielsen analysed stock price reactions to sudden deaths of executives in the US (mostly CEOs and CFOs). The paper identified 149 sudden deaths of US executives from natural causes such as strokes and accidents between 1991 and 2008. The analysis shows that the market reaction to the events of the sudden deaths is significantly more negative for those executives who were expected to receive larger compensations (measured relatively to firm size). This finding lends support to the talent-based explanation of CEO pay, as the evidence suggests that the stock market's valuation and the boards' valuation of CEO contribution to their firms are correlated. Further evidence suggests that an average executive retains between 70 % and 80 % of the marginal rent. In contrast, the firm (i.e. the shareholders) only keep 20 % to 30

% of the marginal rent. The question remains: does this apparently uneven rent split reflect the relative scarcity of available talent on the one hand, or is it symptomatic of increasingly complex pay camouflage strategies, myopic corporate boards and stock markets suffering from asymmetric information problems on the other?

This section has demonstrated that the tension inherent in this and related issues continues to command the attention of academic economists. It will be observed in the following section that within the body of empirical literature on the pay-performance issue, both theoretical traditions are able to point to support for their positions.

The Pay-Performance Literature

CEOs are often responsible for complex and non-routine tasks such as leading the development and implementation of the firm's investment strategy and assessing the principal risks facing the firm. To the extent that direct monitoring of CEO effort and effectiveness in shareholder value creation is costly or unfeasible, agency theory advocates the use of incentive contracts where CEO pay is tied explicitly to firm performance. In practice, CEO personal wealth is linked to firm performance through annual bonuses, share ownership, and various form of equity-based pay: restricted share schemes, share (stock) option plans, performance share plans, or long-term incentive plans. Frydman and Jenter (2010) report that the share of the performance-based component in total pay across U.S.-based CEOs has been on the rise since the 1970s. In 2008, a typical S&P 500 CEO had about 78 % of his or her total pay linked to performance and, potentially, "under risk" if the firm does not perform well. Similarly, performance-related pay of a typical CEO of a large UK-based company makes up about 70% of total pay (Renneboog and Zhao, 2011). However, as we will see from the research reviewed below, not all pay components that are, supposedly, performance-related are equally good at creating a robust pay-performance link in practice.

Viewed as an instrument of incentive alignment and a key prediction of agency theory, it is unsurprising that the sensitivity of CEO pay to firm performance has been studied intensively over the past two to three decades. Methodologically, the link between pay and performance is usually measured by two closely related measures: pay-performance *sensitivity* (PPS), which shows the absolute increment to pay associated with a \$ 1,000 increase in shareholder value, and pay-performance *elasticity* (PPE), which shows the percentage change in pay associated with a 1 % increase in shareholder value, see Murphy (1999). In terms of performance measures, the literature both uses accounting-based measures such as return on assets (ROA) and return on equity (ROE), and market-

based performance indicators such as Total Shareholder Return (TSR) and the market value of the assets relative to book value, or Tobin's Q.

Early empirical studies focused almost exclusively on the sensitivity of cash pay, i.e. salary and annual bonus, to changes in performance and collectively suggested that the sensitivity is quite small (Rosen, 1992; Conyon and Gregg, 1994). Typical estimates at the time suggested that firms pay their CEOs between one and one and a half percent more in salary and bonuses for a ten percent rise in shareholder value – arguably, a very modest reward for a fantastic financial result. Not only were empirically estimated sensitivities of cash pay to performance disappointingly low, they also seemed to vary across different studies and different samples of firms. While some studies reported relatively stronger pay-performance correlations (Belliveau, O'Reilly and Wade, 1996), others reported pay-performance sensitivities that were economically and statistically negligible.

The estimates of cash pay sensitivity, as the measure of incentive strength, are incomplete in the sense that they ignore equity-based pay. Jensen and Murphy (1990) followed *Forbes'* compensation surveys published between 1974 and 1986 and showed that, even in the 1980s when stock options and CEO equity holdings were not as ubiquitous as they are now, most of the pay-performance link that could potentially affect CEO decision making was generated by equity-based pay and by accumulated holdings of firms' shares, and not by annual bonuses. More precisely, CEO firm-related wealth is directly affected by the value of share options granted in the year, by the changes in value of unexercised options granted in the previous years, and by the changes in value of CEO shareholdings. Hall and Liebman (1998) further documented the key role of equity-based pay and, in particular, the effect that the remarkable growth in option grants had on incentive pay in the 1990s. Using a sample of 478 large US-based firms and the pay data from 1980 to 1994, Hall and Liebman reported, broadly in agreement with prior studies, that firms pay their CEOs about 2.2 percent more in salary and bonuses for a ten percent rise in shareholder value. In contrast, when year-to-year changes in value of CEOs' holdings of options and shares are taken into account and are added to the annual cash pay figure (or, subtracted from cash pay when CEO equity holdings are losing value), this broad measure of CEO income flow from cash and equity combined is remarkably sensitive to stock price. Research suggested that for a typical (median) CEO in the sample, a hypothetical scenario where shareholder return goes up by 10 percentage points would yield a 39 percent increase in the annual income flow from cash pay and equity combined! Hall and Liebman's analysis also suggested that, by this measure, the total elasticity of CEO pay to firm market value rose by more than 200 percent between 1980 and 1994 due to the increased use of option grants as

they conclude emphatically “Are CEOs paid like bureaucrats? Our evidence suggests that the answer is no”.

UK pay data and research at the time were telling a very similar story. Using a sample of 1,000 UK-based companies and a time period from 1984 to 1995, Benito and Conyon (1999) reported that UK firms pay their CEOs about 2.6 percent more in salary and bonuses for a ten percent rise in shareholder value – the result qualitatively similar to that of Hall and Liebman. Similarly to the US studies, and in support of the incentive alignment view, those pay studies that took into account CEOs’ holdings of share options and, later, restricted stock, reported much higher levels of pay-performance elasticity (Buck, Bruce, Main, and Udueni, 2003; Main, Bruce, and Buck, 1996). Main *et al*’s estimations for the highest paid director suggested that a ten percent rise in shareholder value yielded an 8.94 percent increase in the annual income flow from cash and from unexercised options combined (where option evaluations used Black-Scholes approximations). Overall, empirical results by Hall and Liebman (1998), Main *et al* (1996), and others clearly contradicted the claims that there was no correlation between pay and performance. Evidence suggests that the share of the pay-performance link generated by long-term compensation such as equity- and shareholdings was on the rise and, by the mid-nineties, it had dwarfed the pay-performance link generated by annual bonuses.

Tosi, Werner, Katz, and Gomez-Mejia (2000) provided the first meta-analytical study of the growing empirical literature on performance pay, which summarized and assessed results across different methodologies and datasets. In part, as a reflection of the dominant methodology that focused exclusively on the determinants of cash pay (salary and bonuses), the meta-analysis suggested that only 4% of the observed variance in CEO pay could be explained by changes in firm performance. Firm size factors, on the other hand, were found to be explaining about 90% of the variance. Pay researchers took this as evidence that “average” pay-performance estimates masked important heterogeneity across firms – if different firms pay their CEOs differently, pay for performance could be relatively stronger in some firms and relatively weaker in others. Theoretical arguments were developed that suggest that pay-performance sensitivity that firms should (or, would) adopt could be industry-specific and could further depend on factors such as firm idiosyncratic and market risks, ownership structure, organisational strategy, and corporate governance characteristics. This prompted empirical researchers to look for moderator effects to the pay-performance relationship: contingent factors that increase or decrease pay-performance sensitivity (Barkema and Gomez-Mejia, 1998; Tosi *et al*, 2000). More recent developments in the empirical literature on pay-performance sensitivity include studies that examine the following groups of moderator effects: (1) institutional ownership and the effects of different types of institutional investors on PPS; (2) the effect of formal board characteristics such as

board independence; (3) the role of director networks and the use of external consultants; and (4) the effect of external factors such as changes in regulation.

Institutional Ownership: A vast empirical literature supports the view that large institutional shareholders have the potential to influence CEO decisions. As the incentives to influence the management and the firm strategy rise with investor's equity at stake, large institutional shareholders with appropriate skill are expected to influence the pay setting process. Hartzel and Starks (2003) find that concentrated institutional ownership is, on average, associated with higher pay-performance sensitivity and lower levels of pay. Recent analysis also suggests that not all institutions are equally good at making their voice heard and helps classify institutions into relatively more "active" and more "passive" owners. For instance, Almazan, Hartzel and Starks (2005) find that independent investment advisors and investment company managers are better monitors and are associated with stronger pay-for-performance than banks and insurance companies. Shin and Seo (2011) also show that mutual funds and public pension funds are associated with different levels of PPS in the firms that they invest, which indicates further heterogeneity among institutional owners. Studies further show that transient institutions with high portfolio turnover are more likely to be focused on short-term financial performance (e.g. quarterly earnings), more likely to be passive in matters of corporate governance and more likely to prefer 'exit' over 'voice'.

Boards: Pay research documents that pay outcomes are determined, in part, and in a variety of different contexts, by the quality of the board. Other things equal, CEOs' ability to influence their own pay is expected to be stronger when boards are weaker and CEOs are stronger. For instance, evidence suggests that weaker boards tend to reward CEOs for lucky events outside of CEOs' control more often than stronger boards do (Bertrand & Mullainathan, 2001; Garvey and Milbourn, 2006). In particular, separation of the roles of CEO and Chairman, a high proportion of non-executive directors, and effective and independent nomination and remuneration sub-committees are expected to be associated with more robust pay-setting process.

It might seem counterintuitive, but empirical studies of the effects of board independence on CEO pay and pay for performance, in particular, are mixed and inconclusive. Core, Holthausen, and Larcker, (1999) find that board independence, as measured by the proportion of non-executive directors, is associated with lower levels of CEO pay. Rayan and Wiggins (2004) report that board independence is associated with stronger pay-performance links. By contrast, Renneboog and Zhao (2011) find, with a large dataset that covers all listed UK companies from 1996-2007, that board independence is both *positively* correlated with CEO total pay *and* with year-on-year changes in CEO pay,

while controlling for market and accounting performance. Using a sample of FTSE 350 firms from 2002-2008, Goh and Gupta (2011) find that board independence is associated with higher levels of CEO salary, bonuses, *and* with higher levels of equity-based pay. It is possible that more independent boards find it difficult to monitor CEO actions and opt for high-powered incentives as a substitute for monitoring by granting more equity-based pay. In order to compensate CEOs for bearing high firm-specific risk that comes with options and shares, the boards have to increase CEO salary proportionally. Indeed, the literature suggests that non-executive directors may lack the incentives and skill to monitor CEOs and may depend on the CEOs for key information (Ezzamel and Watson, 2005). A further point is that both CEO compensation and the board's independence are, in part, outcomes of a bargaining game between the CEO and the board. If both pay and board independence are driven by some third unobserved factor such as CEO past performance, an empirical correlation between pay and board characteristics does not indicate a true causal relationship (Hermalin and Weisbach, 1998).

In contrast, there emerged a relatively stronger consensus across a large body of empirical literature on the effects of CEO-Chairman duality on pay outcomes. The separation of the positions of Chairman and CEO is associated with stronger penalties for poor performance – Franks, Mayer, and Renneboog (2001) report that UK CEOs that combine CEO/Chairman titles are rarely dismissed for poor financial performance. Buck *et al* (2003) find that CEO pay-performance sensitivity is lower when CEO/Chairman titles are combined. Finally, the recent meta-analysis of available literature strongly suggests that CEO-Chairman duality is associated with higher CEO pay (van Essen et al, 2015).

Director networks: By serving as a non-executive director in other firms, CEOs accumulate connections and grow networks. Renneboog and Zhao (2011) examine the influence of director networks on CEO pay in the UK. On the one hand, well-connected boards may, potentially, use social relationships to gather relevant information on the quality of prospective CEOs and benefit from a spread of best management practice through the director network (Larcker, So, and Wang, 2013) including information on pros and cons of alternative incentive pay contracts. A large network may also reflect directors' reputation and past experience and success in other firms. These positive characteristics can be valuable to firms and, as such, should command a premium on CEO labour market. On the other hand, networks of executive directors could be a mechanism of managerial power accumulation vis-à-vis their boards and could benefit self-serving CEOs. Available evidence also suggests that well-connected directors that serve on three or more boards at the same time as non-executives ("busy directors") are poor monitors. Using a large panel data over the period 1996-2007, Renneboog and Zhao report a number of interesting and relevant findings. First,

they show that CEOs that have large networks (i.e. serve on many boards) enjoy larger pay with *lower* pay-performance sensitivity. This result supports the rent-extraction, or managerial power view of networks. Secondly, CEOs with relatively more “central” position in the broad director network (as proxied by a reciprocal to the average number of degrees of separation to other directors) enjoy larger pay with *higher* pay-performance sensitivity. The authors interpret this result as evidence that firms value CEOs with well-connected networks and are ready to pay a premium for well-connected boards.

External Consultants: Empirical studies document a growing use of compensation consultants in pay-setting process. UK-listed firms are required to report the use of compensation consultants since 2003. Conyon, Peck, and Sadler (2009) find that the use of pay consultants is associated with higher levels of total CEO pay and with *stronger* reliance on equity-based pay. By contrast, Goh and Gupta (2010) investigate instances when firms change compensation consultants. They report that CEO pay is both higher and *less* sensitive to performance in the year when the change is reported. The researchers interpret this result as a manifestation of “opinion shopping” on the part of the firms that use consultants in search for ways to legitimise higher CEO pay.

Shareholder voting or “Say on Pay” (UK): As a result of a series of regulatory reforms and initiatives, the UK Corporate Governance Code now enforces a greater degree of transparency and disclosure in reporting pay arrangements. Disclosure helps reduce monitoring costs and should help maintain greater shareholder scrutiny that feeds relevant information to the market. The Directors Remuneration Report regulations, introduced in 2002, required boards of directors to hold a non-binding shareholder vote at the firm’s Annual General Meeting on the subject of executive pay. The idea behind the non-binding vote is, arguably, that the very public nature of the vote could help the market send a clear message of confidence, or lack of thereof, in the boards’ remuneration strategy. A threat of a public scandal and the risk of a (likely negative) market reaction should arguably constrain some of the more direct means by which CEOs could inflate their pay and extract rents.

A small but growing number of empirical research have expressed concerns with the general effectiveness of “Say on Pay” reforms in the UK. First, Conyon and Sadler (2010) report that shareholder dissent on pay resolutions is low - only ten percent of votes or less vote against or abstain. Secondly, shareholder dissent on pay resolutions appears to be driven more by general concerns about firm performance rather than by their issues with pay. Thirdly, empirical evidence suggests that shareholder dissent does not reduce subsequent pay awards (also see Gregory-Smith and Main (2014), for a discussion of the introduction of binding shareholder vote).

Further research on “Say on Pay” will undoubtedly help us get a more detailed view on the effectiveness of this regulation. Of course, if shareholders use pay resolution votes as a coordination mechanism to signal their frustrations and concerns with broad issues such as poor performance, - this is not necessarily a bad outcome (even if unexpected). It is, therefore, encouraging that available evidence suggests that the introduction of “Say on Pay” legislation strengthened empirical sensitivity of CEO pay to instances of poor performance (Ferri and Maber, 2013).

Understanding the Diversity of Empirical Results: Some Methodological Notes

A noticeable feature of the empirical literature on the pay-performance relationship is its diversity in terms of the degrees of sensitivity or elasticity. To some extent, of course, this reflects the vagaries of the markets under scrutiny, such as the problems of talent identification and measurement, unevenness in the degree to which such issues are manifested across different markets and institutional contexts and cross-market differentials in the influence of moderating factors. To a significant degree, also, it reflects the diversity of empirical approaches, in particular in terms of the detail of method applied to the interrogation of the pay-performance relationship. There are a number of specific issues which have served to exemplify and explain methodological diversity. One relates to the valuation of state-contingent pay components, such as the absence of a widely-accepted basis for measuring the interim value of executive share options or long-term incentive plans (LTIPs) prior to maturity. With share options, a common default has been to use the Black-Scholes valuation model, though this was originally developed in relation to the valuation of tradable and short-term (generally three months) options, rather than the non-tradable and much longer (normally seven years) executive share option. Interim valuation of LTIPs is more problematic, with value often dependant on the performance of large numbers of peer companies and/or market indices. Another enduring issue for this type of study relates to the direction of causality in the pay-performance relationship, where there are strong arguments for suggesting both that pay structures are designed to incentivise performance and that performance determines pay outcomes. Disentangling these effects reliably is problematic and different ways of addressing this issue generate understandable differences in results. Further issues include the appropriate level of analysis, with studies focusing, respectively, on the CEO and the board as an entity. Again, this variation accounts for some of the differences in reported effect. Another area where researchers have been required to use their ingenuity in dealing with an empirical issue relates to their response to imperfect data availability. With variability in reporting practice across companies and jurisdictions, there is equally variation in the way that investigators deal with unevenness in data.

The Evolving Agenda: New Strands of Empirical Enquiry

Whilst the diversity of empirical findings may have been a factor in sustaining interest in pay-performance studies through the latter part of the twentieth century, there has, in the last decade, been a noticeable slowing in the rate of empirical enquiry into the pay-performance relationship. This reflects, in part, a degree of fatigue with further replication of what had become a relatively standard approach. In part, too, it reflected the reality of weak equity markets in the first decade of this century, which meant that stock-based compensation lost some of its lustre as a pay component.

The academic agenda in relation to executive compensation continues to develop, however, with a number of new strands of enquiry emerging. In the context of economies characterised by recession and early and/or gradual recovery, there has been increased focus on sustained high absolute levels of pay for senior executives and on the differential between CEO/senior executive pay and median organisational pay level

There is also a growing realisation that generating a richer understanding of pay outcomes demands that we embrace more thoroughly the complexity of pay-setting arrangements. This involves exploring the idiosyncrasies of process, the organisational politics of pay setting and the power relationships which help to explain pay outcomes. In this vein, recent work by Skovoroda and Bruce (2013) investigates the significance of performance peer group composition and in particular, changes to peer group composition, in determining reward based on stock-based compensation. Their findings are suggestive of deliberate manipulation of peer groups to soften performance targets, favouring the rent extraction perspective.

Equally, there is also an increasing understanding that stock-based pay components may affect other aspects of corporate behaviour apart from those which impact directly on performance. As such, one question which has received increasing recent attention is how reward systems which feature a high degree of stock-based compensation affect executives' risk appetites and companies' risk profiles. This relates to the view that comprehensive alignment of managers' and shareholders' objectives must embrace alignment of risk preferences (Murphy, 1999). As argued by Lambert et al (1991) and Hall and Murphy (2002), shareholders with opportunities for diversified portfolios are relatively risk neutral compared with firms' senior executives, who typically have specific human capital investments in a company, alongside significant wealth in the form of company-specific equity resulting in their over-exposure to company risk.

A well-established theoretical attraction of stock-based compensation is its potential to reduce managerial conservatism by effecting closer correlation between the risk preferences of relatively risk-loving shareholders and those of relatively risk-averse executives. With its associated convex wealth/ stock price function (Aggarwal and Samwick, 1999; Rajgopal and Shevlin, 2002), stock-based pay elements may dominate the offsetting influence of risk-averse executives' concave utility functions, incentivising their commitment to value-adding projects which they would otherwise be inclined to reject in the absence of this form of pay component. Hall and Murphy's (2002) certainty-equivalent framework urges caution as to the net effect, however, suggesting that the effect of options on CEO risk-seeking is ambiguous. The certainty-equivalent framework also highlights the difference between the risk-neutral (Black-Scholes) and risk-adjusted valuations of ESOs to the CEOs, with the difference between the two valuations arising from CEO risk-aversion and under-diversification.

A recent and related development in the literature relating risk to stock-based compensation has been closer attention to the effect of stock-based compensation on the *composition* of firm risk; specifically, on the relative appetite for idiosyncratic risk and systematic risk. Here, idiosyncratic risk relates to risk associated with aspects of firm specific activity, whereas systematic risk, conventionally measured by the firm's beta, is that associated more generally with firms within a particular industry, market or sector, more or less broadly defined. An important consideration here is that CEOs, and executives more generally, are in a position to trade the broader market more freely, and/or at lower cost than they can their own companies' stock, where contractual or regulatory restrictions invariably apply (Jin, 2002; Garvey and Milbourn, 2003; Kahl *et al*, 2003; Tian, 2004; Henderson, 2005; Duan and Wei, 2005; Acharya and Bisin, 2009; Gao, 2010; Armstrong and Vashistha, 2012).

Thus, un-hedged risk-averse CEOs can increase the subjective risk-adjusted value of incentive pay by (a) hedging the systematic risk of ESOs by reducing exposure to/shorting the market index and (b) by increasing their firms' betas, which also makes hedging more effective.

The firm-level effect of this type of behaviour could be value-destroying if it reflects CEOs passing up innovative projects with higher idiosyncratic risks in favour of more standard projects, with market-like risks. From a shareholder perspective, this type of effect is unwelcome in narrowing the range of risk positions from which they can select in assembling their preferred portfolio. Armstrong and Vashistha (2012) observe that preference for projects with high (and hedgeable) systematic risk, adversely affects shareholders in two ways: managerial time may be diverted towards the pursuit of systematic risk investment projects which do not enhance firm value and such behaviour may lead to excessive levels

of systematic risk in equity markets, thereby compromising risk-sharing between investors to the detriment of firm values. Consistent with the general theme of substitution between idiosyncratic and systematic risk, Armstrong and Vashistha (2012) also note a propensity for firms engaged in merger activity to prefer mergers which increase the combined entities' systematic risk compared with alternative potential mergers which would have increased the idiosyncratic risk of the merged entity.

Whilst this substitution between forms of risk might at first appear to be an altogether more subtle behavioural change, it is arguably one which carries profound implications not just for shareholders and for corporate performance and value, but for wider sectoral or broader market resilience. As such, managerial incentives can be seen as 'an endogenous determinant of the extent of aggregate or economy-wide risk' (Acharya and Bisin, 2009).

A further more recent strand of research has explored whether high levels of stock-based compensation encourage executives to obfuscate, manipulate or withhold corporate data, with the aim of camouflaging information which could otherwise compromise gains associated with this form of pay element. The capacity to manipulate the reported results of a company via the discretionary use of reporting conventions has received significant empirical attention. In this context, Bergstresser and Philippon (2006) identify a link between the use of discretionary accruals to manipulate reported earnings and the significance of stock-based elements in the packages of American CEOs. They also find a correlation between the use of accruals and levels of option exercise and share trading, which suggests that manipulation forms part of a deliberate strategy by executives to capture rent from the company.

Burns and Kedia (2006) investigate the relationship between CEO stock option holdings and the use of what they term 'aggressive accounting practices' to manipulate reported performance. By comparing episodes where accounting restatements were required with cases where original reported performance was accepted, they identify a clear and positive correlation between levels of stock based compensation and the incidence of restatements. Efendi, Srivastava, and Swanson (2007) develop this line of enquiry by comparing, respectively, serious and less serious cases of mis-statement with cases where no restatement was necessary and find that options which are 'deep in the money' appear to be associated with enhanced incentive to mis-represent reported results. A further example of manipulation is earnings smoothing, where misrepresented reported figures are designed to increase perceptions of permanent earnings (Kirschenheiter and Melumad, 2002). More or less explicit in these studies is a suggestion that there may be an optimal level of stock based compensation, which sufficiently sharpens performance-enhancing incentive without

encouraging behaviours which seek to misrepresent real performance by manipulating reported results. Hutton *et al* (2003) offer a broader discussion of these types of behaviour, and those aspects of the governance and wider institutional environment which either facilitate or inhibit them. For example, the ability of executives to manipulate or mislead is seen to be constrained by environmental factors such as higher levels of institutional investment (Piotroski and Roulstone, 2004; Cornett, Marcus and Tehranian, 2008) and the level of development of the capital market (Li, Morck, Yang and Yeung, 2004), as well as by internal factors such as the independence of the audit committee and board.

Whilst the above studies explore behaviours which are readily identifiable as institutional features such as discretionary accruals, re-statements or earnings smoothing, there are, equally, other aspects of executive behaviour which might be influenced by remuneration arrangements, but which are (at least *at the time*) less easily identifiable. One example of this might be the incentive, in the short term, for stock-incentivised executives to conceal or withhold information deemed likely to have a negative impact on reported results. Here, Jin and Myers (2006) argue that whilst executives may be prepared to absorb the costs of inhibiting transparency in the short term, sustained underperformance can result in abandonment of this position, immediately prior to the release of an accumulation of previously concealed negative information and a violently negative market reaction.

The above examples offer a clear indication that the research agenda in the area of executive reward remains vibrant, challenging and, at the same time arguably, more diverse and sophisticated than at any time in the last thirty years. Whilst there is always likely to be academic, and broader, interest in the pay-performance question, we are learning that the structure and form of executive pay has more profound consequences for wider corporate behaviour and characteristics and that investigation of the architecture and processes of pay determination is fertile territory for those researchers interested in executive reward and the broader context of corporate governance within which it is located.

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