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Abstract

The pay of top management in public companies has been a matter of public concern at least since the early 1990s in the UK and USA. How do we/should we think about this pay problem and its solution? This paper proposes an empirically based re conceptualisation of top management pay. The established problem definition is that pay is, or should be, about performance; but remuneration committees and shareholders are apparently unable to enforce this solution. Our response is a two fold attempt to move beyond the established problematisation. First, empirically in terms of problem definition, we present a study of FTSE250 pay patterns which illustrates and explores how top management pay is a kind of fee scaled according to company size. Second, conceptually in terms of solution we argue that the pay as fee re-problematisation opens up new ways of thinking about how top management pay should be controlled and designed.

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1. Introduction

It is easy to explain why top management pay in public companies has become a public issue. Since the 1970s in US giant firms, and a few years later in the UK and in smaller firms, the pay of top managers seems to have moved onto a new trajectory of sustained, substantial, year on year increases of more than 10% per annum. These increases have over time greatly increased top to bottom income differentials so that the British FTSE 100 CEO who earned 9 times the pay of an ordinary worker earned 54 times the pay of such workers in 2004-5 (Erturk et al., 2005) Furthermore, these increases are out of all proportion to much more modest increases in sales, profits or to any other kind of value creation through earnings or share prices which can plausibly be related to management effort (Froud et al., 2006).

The mainstream response has been to construct all this as a problem about “pay for performance” on the supposition that high rates of pay and large increases for top management would be defensible, if top pay was conditional upon value creating performance which raised shareholder returns. This problematisation is described in the first section of our paper. This section considers the origins of pay for performance in American mainstream finance theory and then explains how UK corporate governance turned pay for performance into a policy principle in the 1995 Greenbury report (Study Group on Directors’ Remuneration, 1995) and subsequent public criticism of “rewards for failure”. Over a decade later, and despite the best efforts of remuneration committees and of shareholders, pay for performance is more heuristic than solution because it is difficult to establish an *ex ante* link between pay and performance at individual company level which delivers the desired “pay for performance” results. The main difficulties are that the concept of performance is elusive and that it is difficult to devise pay schemes in individual companies which relate outcomes to effort or quality of management input.

This article proposes a problem shift which sets pay in a new context of pay as fee. Our reconceptualisation does not start from prescriptions about what boards should be doing about pay, but rather from evidence on what companies are in fact doing about pay. In the second section of our paper we present an empirical analysis of the empirical variation in pay in the UK’s FTSE 250. In this analysis we focus not on the explicit structure of incentives through bonuses and the like at single company level but on the implicit structure of incentives established by the differences in pay within the group of companies. Our empirical research, on variation of pay within the FTSE 250 group of companies suggests that actual pay (base salary, actual annual bonus, and expected value of all the long term incentive awards) provided to FTSE 250 top managers’ follows two principles: first, there is effectively a minimum going rate and, second, there is a scalar supplement because pay increases with company size in terms of market capitalisation. Considering these two features – the minimum charge and scalar supplement – ‘top managers’ pay can be thought of as a fee for services like those charged by professionals and intermediaries.

More empirical research into these issues is needed because our research is effectively a kind of pilot study which considers only the correlates of pay in one group of medium sized companies over a few years. But, our results are consonant with the general relation between pay and company size which other researchers have found (as we note in the first section of this paper). So it is well worth considering the policy implications of the problem shift onto pay as fee as we do in the third and final section of this paper. In a mainstream shareholder value frame, the problem with the existing fee structure is that it can provide an implicit empire building incentive for managers to increase company size through mergers and

acquisitions. Within this frame, the results would be perverse if mergers increase size in terms of market capitalisation but not value in terms of criteria like ROCE (Return on Capital Employed) or EPS (Earnings Per Share). More fundamentally, the pay as fee insight raises questions about whether pay for top managers could or should be generally designed as an effective incentive system of the kind prescribed by “pay for performance” where appropriate incentives drive management effort which levers (better) financial outcomes for shareholders.

If this kind of linear result cannot be reliably produced and top management pay is a scaled fee, what are the implications? These issues are taken up in the final section of our paper on policy implications which highlights the scope for simplification of pay formulae and greater clarity in discussion of the rationale for high pay. Consultants, remuneration committees and outside investors could all focus on pay as a percent of market capital and profits where median comparisons would serve a new purpose of controlling fees paid. There is also the possibility that top management pay should be used more modestly as a focusing device which directs management effort to what matters strategically and operationally. That shift would allow remuneration committees to take more interest in the often non-financial drivers of value after considering the opportunities and problems of the business.

2 What firms should do: the (unsolved) problem of pay for performance

If the principle of “pay for performance” is now conventional wisdom – where did it come from and when did it solidify into a received idea? Intellectually, the problem of pay for performance has its origins in American mainstream finance of the mid 1970s. Academics like Jensen and Meckling (1976) then added principal/agent conceptualisations to pre-existing ideas about the firm as a nexus of contracts and thereby created a problem about aligning the interests of manager/agents with shareholder/principals. The academics were initially divided on whether and how the requisite alignment of interests was (or could be) enforced by different mechanisms. Michael Jensen (1993) initially emphasised the disciplinary role of corporate takeovers while Eugene Fama (1980) emphasised reputation and the importance of external labour market judgements about top managers’ performance. But the incentive and disciplinary mechanism of CEO pay then became increasingly important as CEOs obtained sustained, large CEO pay rises. This provoked social panic in the USA in 1991-2 with popular criticism of “excess” and “overcompensation” by authors like Crystal (1992) and also encouraged academic research into pay by mainstream finance authors using a variety of techniques and models for isolating and measuring the correlates and determinants of pay.

If the problem of “pay for performance” was invented in the USA in the 1990s, it was reinvented as a solution in the UK in the 1990s with the development of British style proceduralised corporate governance in the shareholder interest. The recommendations of reports by Cadbury (Committee on the Financial Aspects of Corporate Governance, 1992), Greenbury (Study Group on Directors’ Remuneration, 1995) and Hampel (Committee on Corporate Governance, 1998) were codified in a voluntary Combined Code of corporate good practice. From our point of view, the key text is the Greenbury report of 1995 which was partly a response to concern about “fat cat” pay in privatised utilities and introduced an agency style problem about the “alignment of interests” between shareholders and the top managers who serve as executive directors. Greenbury’s report then deliberately focused on the service contract as way of aligning interests and gave the non-executive directors in remuneration committees the responsibility for devising pay structures which give the top managers as executive directors proper incentives to deliver shareholder value:

The performance related elements of remuneration should be designed to align the interests of (executive) Directors and shareholders and to give (executive) Directors keen incentives to perform at the highest levels

(Study Group on Directors' Remuneration, 1995, *chap 4*).

From this point of view, high pay was not as such a problem, but could be part of the solution if performance related elements of remuneration were used as incentives to lever top management effort which delivered more shareholder value.

This was easier said than done. Public disquiet about executive pay continued in the UK and USA with, for example, British concern about “rewards for failure” in the early 2000s. And so, further committees and reports followed (Department of Trade and Industry 2003, Isles 2003), as part of a cycle of repeated public and investor disappointment with the relation of management pay to performance,

Disappointment recurs despite continuing effort by boards and consultants to reform pay and incentive structures. In terms of pay formulae, the period since the early 1990s has been one of continuous innovation in pay practice so that in the UK there have been successive experiments using share options, then performance share plans and deferred annual bonus plans. Recent empirical research shows that an increased proportion of directors' pay is variable (see for example KPMG 2007). Almost by definition, this establishes pay for performance in a weak sense because an element of the pay package is performance linked. But this of course does not guarantee pay for performance in the strong Greenbury sense which requires *ex ante* that the ‘right’ performance be linked with pay and *ex post* that the right performance be caused by a prior pay design. Behind these two desiderata are other more fundamental questions about management choice of business strategy and the quality of execution which are both crucially important, but not taken into account in standard pay for performance research studies or incentive strategies.

The failure to establish “pay for performance” in the strong Greenbury sense is documented by finance academics in the US and UK who have since the 1980s produced thousands of research studies of top management pay in public companies using a variety of statistical and modelling techniques applied to different company samples. Generally, these academic studies either fail to find a relation between pay for performance or do find a positive relation but are then uncertain about whether the causal arrows run from pay to performance or vice versa. This body of empirical research, which did not find what everybody was looking for on pay for performance, did incidentally turn up other results about pay and size which nobody quite knows how to interpret. Thus, the academic studies which found a weak relation between pay for performance also found a strong relation between pay and company size as larger companies pay executives more. The Tosi et al (2000) meta study tried to weight and relativise the two effects and concluded from US evidence that firm size accounts generally for more than 40 per cent of the variance in total CEO pay whereas firm performance accounts for less than 5 per cent of the variance.

En passant, much of the mainstream academic testing literature notes the importance of company size when discussing the correlates of top management pay. As Conyon and Murphy (2000, p.651) observe in a study of US and UK trends, “the best documented finding in the executive compensation literature is the consistency of the relation between CEO pay and company size”. The exact relation depends on the sample and the measure of size because sales or market cap measures of size will often give different results. Rosen (1992) claimed, a bit optimistically perhaps, that earlier studies had generally found that CEO pay was 0.3 per cent higher in firms that are 1 per cent larger and a recent British study (Guy, 2005) of 190 British companies since 1970 found broadly comparable pay/employment and pay/sales turnover elasticities of 0.20 to 0.32. More remarkably, the Frydman and Saks (2008) historical study on the US notes some complications but finds that “the cross sectional relationship between firm size and executive pay has remained relatively stable over the past 70 years” (p. 19).

Some of the researchers who reported this finding were also concerned with the related question of why larger firms pay more. Some of the explanations specifically tried to explain management pay on the grounds that better managers are worth more to larger firms because, for example, the size of the company compounds the shareholder advantage derived from hiring talented management (Gabaix and Landier 2006). Others related the sustained increases in management pay to a more general explosion in high pay for other groups like financiers, athletes and movie stars. Authors like Frank and Cook (1996) developed generic explanations of high pay for a few stars through their generic ideas about “the winner-take- all society”.

If the rationale for high pay can be debated, no one explanation can be established so that it excludes all others. But if we bracket the question ‘why’, we are left with interesting and answerable questions which take up the pay for size issue and clarify what firms are doing and how they are paying their top execs. And at this point, we can present a study of how pay for size works in the middle sized companies in the UK’s FTSE 250 before proposing a problem shift which allows us to refocus on pay as fee.

3 What firms are doing: a problem shift onto pay as fee

This section develops our argument about how managers are paid and presents empirics on the variation of pay in a sample of FTSE 250 mid caps since 2004. Our thesis is that, in this FTSE 250 group of companies, pay for the top management pay (CEO plus CFO) is, in effect, a fee for managing industrial capital which is scaled according to the value of the company. Our study covers one small sample of medium sized companies in the UK over three years and could be fairly represented as a kind of pilot study of group behaviour. We would ordinarily therefore be cautious about extrapolating these results to other groups of companies, especially giant companies in other times and places. So, in the time honoured phrase, more empirical research is needed, But, as we noted in the last section, academic research has found a strong relation between pay and company size, so we would start from the expectation that our pay as scalar fee interpretation would one way or another hold in many other groups of public companies. Thus, the empirical results of our pilot study are at least suggestive about how the problem about top management pay could be reconceptualised as a problem about fees.

The idea of pay as fee is generally associated with the remuneration of professional and intermediary groups inside or outside the financial services community (from investment bankers to architects) who charge fees for their labour services. This is most often done by charging labour hours out to recover salaries and overhead from several different clients during the year. The jobbing intermediary, as in consultancy or investment banking, often works on a succession of short jobs; and, in such cases, there will often be some minimum charge regardless of the size of the job plus a scalar rate per extra hour for an individual or a team which mechanically adjusts fees charged according to the length and complexity of the job. In other cases with major projects, as in architecture or structural engineering, many professionals work on long lived multi year projects; and here the intermediary earns a pre-arranged fee proportionate to the contract value of the project with payment usually in stages according to the progress of the project. Many intermediaries work for a variety of clients over the year but others routinely charge the whole year out because they effectively work only for one client. This is the position of many traditional fund managers or of hedge fund and private equity general partners, who are paid by their investors out of the fund on a ‘2 and 20 basis’, typically through a 2 per cent management fee on funds managed and a 20 per cent share in profits of the fund.

The fees earned usually become conventional because all or most members of one intermediary group generally charge according to the same formula. Fees therefore represent a social norm whose relation to value added and cost incurred is often opaque and challenges

received ideas about economic rationality or agency theory preconceptions about incentives. In most cases, as in medicine or structural engineering, professional fees are paid on the basis that they secure the best efforts of a competent professional with a duty of care for the client. This kind of professional fee does not incentivise superior performance and provides limited safeguards against underperformance because clients who suffer from professional incompetence or negligence, will either have to sue in the courts or complain to a disciplinary body. In some cases, as in financial services or law, fee charges do incorporate incentives based on performance outcomes, as in the case of lawyers who operate on a “no win no fee” basis. But, more generally, the success of intermediaries and intermediary firms is based on their ability to get the work that generates “chargeable hours” and scale is itself an important determinant of reward. When fees combine flat rate and performance elements, as in fund management on “2 and 20”, the premium for successful performance in managing a more profitable fund is often much weaker than the rewards for upscaling and raising a larger fund. This was certainly in the case of private equity in the 2000s when excess liquidity and cheap debt made it possible to raise ever larger funds. Thus, Metrick and Yasuda (2007) have demonstrated that in US private equity the flat 2 per cent management fee generates nearly twice as much for general partners as the performance-related element of 20 per cent of profits.

After these preliminaries about professional and intermediary fee charges, we now turn to consider the pay of corporate managers. Our research focused on the FTSE 250 group of mid sized companies. This group is researchable because within such companies the top management team is conventionally small and easily defined because it usually consists of a CEO and CFO who are also executive directors and, as such, account for the lion’s share of board pay which can then be taken as a proxy for CEO and CFO pay. The group is also interesting because company size here establishes constraints on very high pay for “value skimming” chief executives which are much stronger than in giant companies of the FTSE 100 or S and P 500 where multi million salaries account for a small share of profits (Froud, et al. 2008). The aim of our analysis was to consider the distribution of actual pay and the variable relation between pay and company size within the group of companies (not incentives at individual company level). As companies enter and leave the FTSE for a variety of reasons, including corporate failure and merger, our analysis focused on a sample of 123 “survivor” FTSE companies which featured in the FTSE 250 of 2004 and 2007. For the purpose of this analysis, total compensation includes base salary, annual bonuses payable for the year and the present expected value of all long term incentive awards granted during the year. Sample selection and methods are explained in the appendix and the characteristics of the companies are summarised in our appendix table 1 which shows companies in the group have mean sales turnovers of around £1 billion and pre tax profits of around £100 million.

The interesting result is that our research into the group of FTSE 250 companies shows that top management pay for the CEO and CFO in the FTSE 250 is paid just like a professional fee based on the two familiar principles of minimum charge and scalar supplement. In the empirically based arguments below, we demonstrate the minimum charge by considering pay distribution within the FTSE 250 sample, and then examine pay and size by considering the correlates of higher pay within our group where scatterplot visualisations are supported by Ordinary Least Square modelling. The technical appendix reports results for robust regression and quantile regression models which use different methods to deal with the influence of outliers. The background is that the distribution of board pay within our sample is considerably more skewed than the

Figure 1: Distribution of board compensation in FTSE 250 companies, 2007

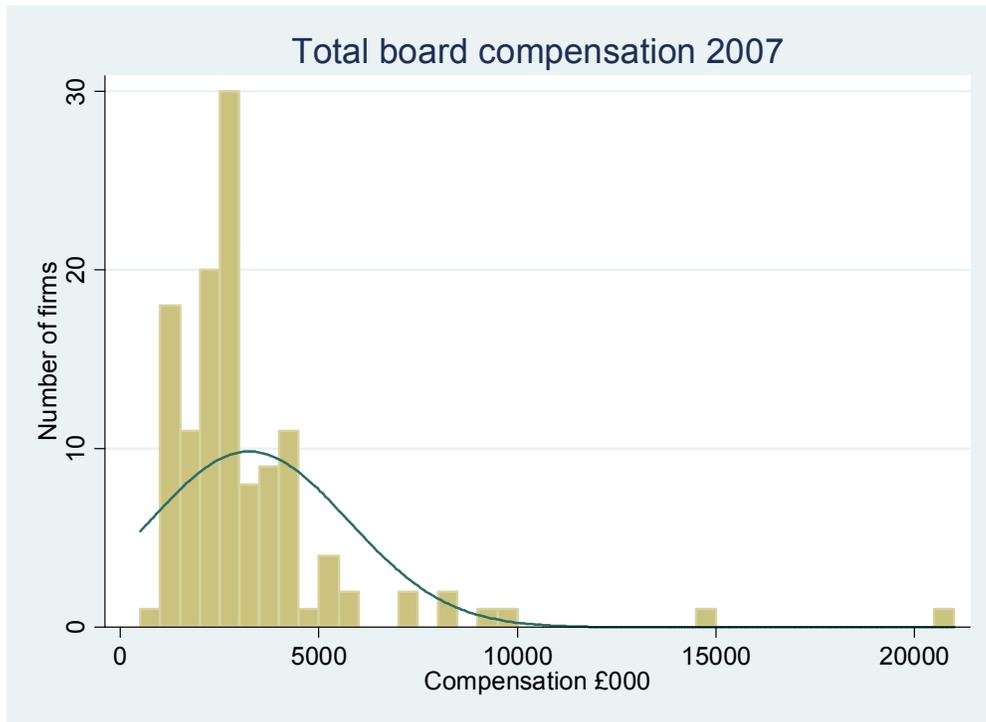
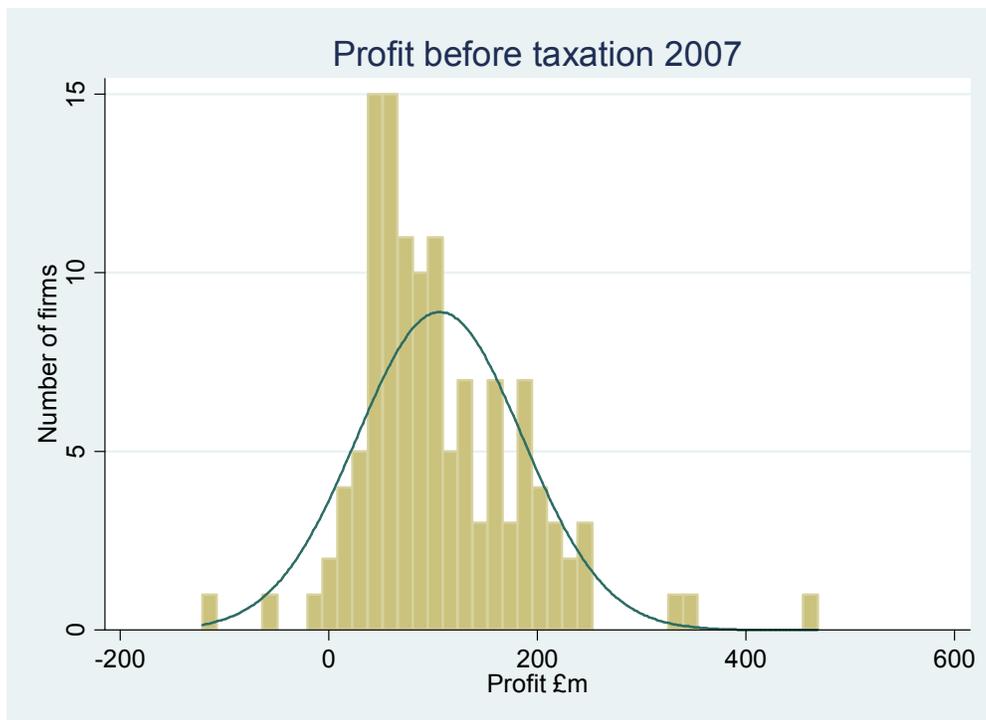


Figure 2: Distribution of profit before tax in FTSE 250 companies (2007)



distribution of other characteristics, such as profits or size measured by sales turnover or market cap. Tables 1 and 2 above show how the distribution of pay in our sample is less like a normal distribution than the distribution of profit.

The existence of a minimum charge or “going rate” of pay can then be demonstrated by considering the distribution. The key evidence here is the peakedness of pay distribution as shown in figure 1 which gives the histogram of total board compensation in the FTSE 250 sample. This has arisen because there is, in effect, a lower bound imposed on the left-hand side of the distribution. Thus, if a FTSE 250 company wishes to hire a top management team it finds there is in effect a minimum going rate: in our sample, the lowest figure for board compensation in 2007 was just under £700,000 and only one firm paid its board less than the £1 million going rate prevailing within this group of companies. Broader comparisons show that the FTSE 250 minimum going rate is different and smaller than the FTSE 100 minimum which in 2007 was around £2 million. As in other fee structures, the economic rationale for the minimum charge is uncertain because the going rate is both a conventional way of charging and a reflection of social norms and we do not suppose that the every top management team in a FTSE 250 company adds at least £700k of value.

The second principle of scalar charge (above the minimum going rate) can then be established by more detailed analysis of how FTSE 250 top management pay increases with company size. Estimation of the relationship between board pay and company size then depends on the choice of size indicators such as market cap or sales, the choice of methods of visualization and technical analysis as well as on investigator decisions about the removal of extreme outliers and the time frame. On this last issue, we experimented with various 2004 and 2007 figures, before choosing a three year horizon because many pay incentive schemes now operate on a three year horizon.

As a first step, in figure 3 below, we constructed a scatter plot matrix of the relation between board pay and various variables after log transformation, using turnover and market cap in 2004 and market cap in 2007 as three separate measures of firm size in the sample. The scatter plots show that market cap (2004 or 2007) has a stronger relationship with board compensation 2007 than either profit before taxation or sales turnover as a measure of size. If we then focus on specific relations, visually the strongest relation appears to be between board pay 2007 and market cap 2004 in figure 4 below and the relation with turnover is much weaker as table 5 shows.

We then constructed an ordinary least squares model to estimate the relationship between board compensation and market cap 2004 and the results are reported in table 1 below. The model yielded a coefficient of 0.32 on the log of market cap and this means that a 1 per cent higher market capitalisation is associated with a 0.32 per cent change in total board compensation. This is roughly in line with variation by size found by other researchers in previous studies of CEO pay in public companies which used various methods. Re-running the model using 2007 data on market capitalisation results in a slightly weaker fit; there is also apparent heteroskedasticity in the model and these results

Figure 3: Scatterplot matrix of board compensation by firm size and profitability

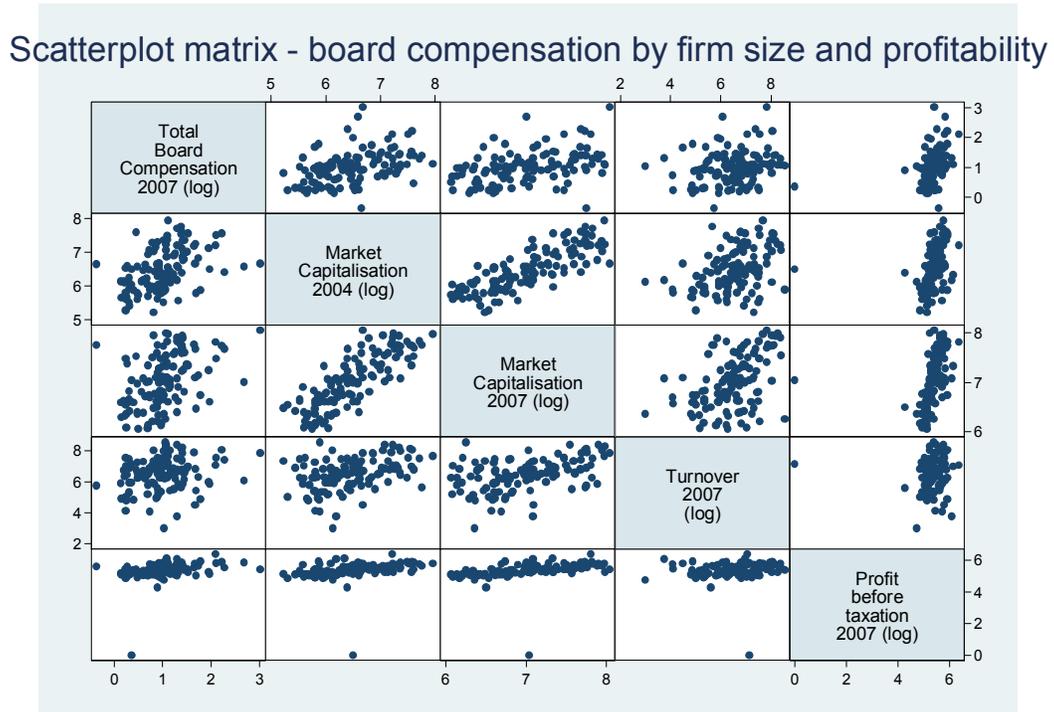


Figure 4: Scatterplot of board pay 2007 against market cap 2004

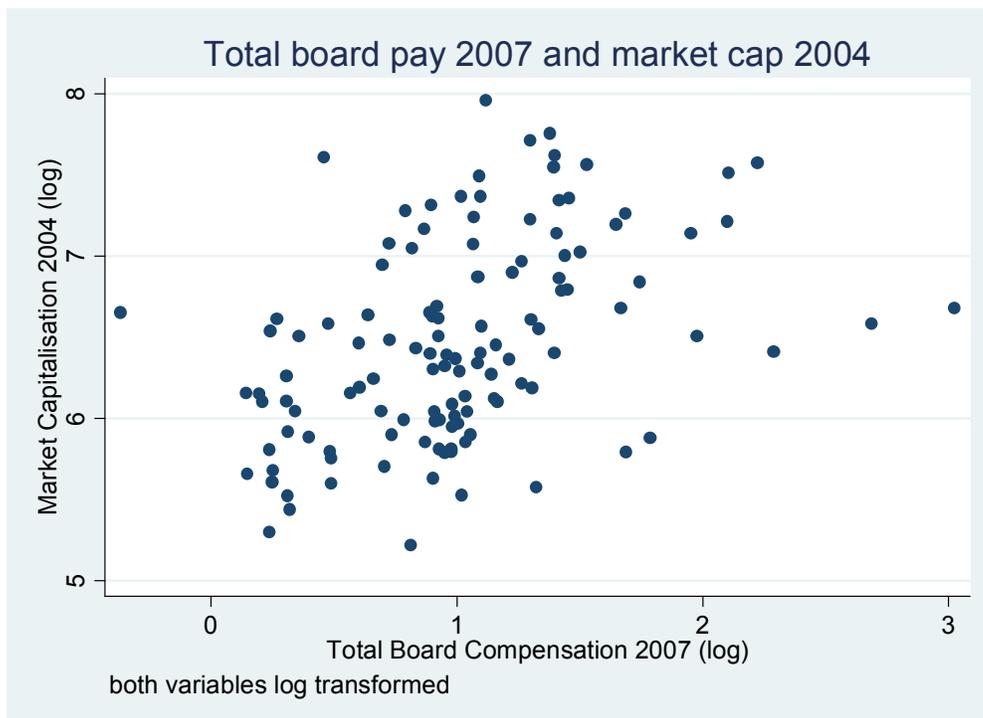


Figure 5: Scatterplot of board pay 2007 against sales turnover

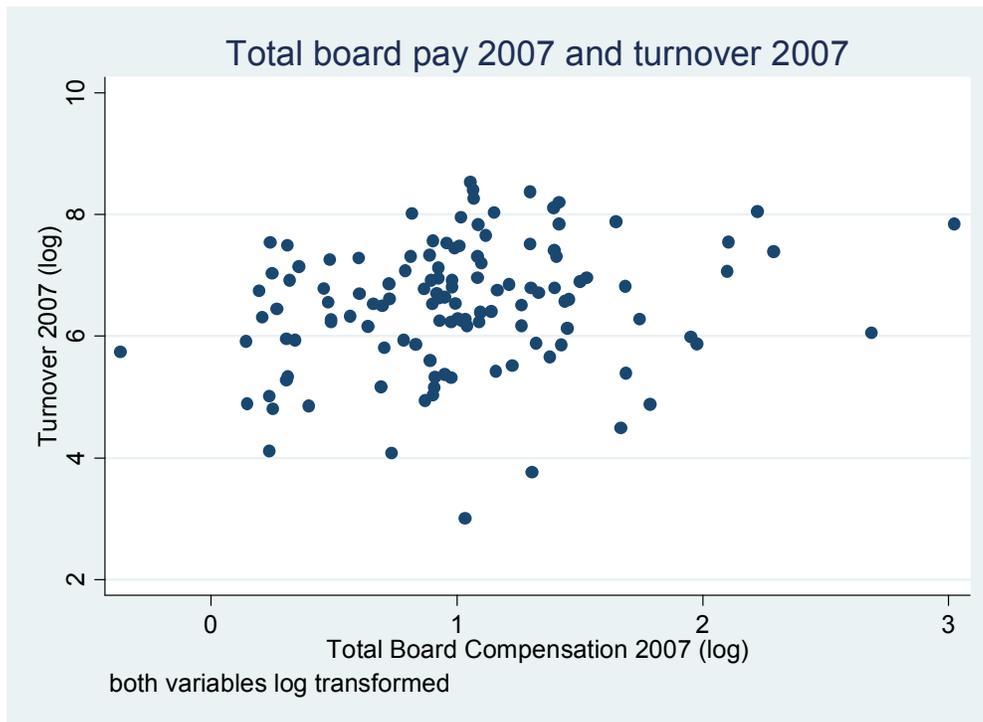


Table 1: Board compensation and market capitalisation 2004

Ordinary least squares model:
 $\ln BdComp = \alpha + \beta_1 \ln MarketCap2004 + \beta_2 \ln PBT + \varepsilon$

Variable	OLS
Constant	-2.075*** (0.535)
Market Cap 2004 (log)	0.320*** (0.073)
Profit before Taxation (log)#	0.189** (0.078)
Adj. R ²	0.207
N	123
F	16.99

are also included in the appendix for information. The better fit is between pay and market cap three years ago.

This pattern of lagged fit suggests that management pay as fee involves a third implicit charging principle beyond the going rate and the up-scaling of pay by company size. The third

implicit principle is that the scalar fee is charged on the value of the market capital at some earlier point in time, in much the same way that a private equity fund manager would charge his/her fee on the value of the fund capital original invested. This nicely makes the point that top management in quoted companies is effectively earning a fee for managing an industrial capital requiring strategic and operating decisions just like the intermediary fund manager earns a fee for managing a financial capital requiring allocative decisions.

These results open up all kinds of interesting empirical questions about whether and how management fee charging is (or was) different in other groups of companies in the 2000s or previous periods. As we have noted, earlier researchers have generally found top management pay increases with company size in a variety of studies going back to the 1970s or earlier. But, the detailed and specific basis for fee charging has probably changed over time with the rise of shareholder value and corporate governance since the early 1990s. The rise of shareholder value may have reinforced the importance of market capital against other measures of size such as turnover. While corporate governance formalised practices of pay setting by remuneration committees with expert consultancy input which certainly embedded the principles of the going rate and variation by size as described above in the FTSE 250 sample.

- Remuneration committees commonly seek to pay the median which can lead to ratcheting of pay and clustering of pay levels so that pay distribution does not follow a normal curve of distribution
- Benchmarking methodologies are also separately important because, insofar as size is one of the criteria for inclusion in the group, benchmarking will reinforce the relation between pay and company size.
- In FTSE 250 mid caps, the aggregated senior executive pay is likely to be constrained by overall dilution more so than in giant companies. Insofar as dilution is calculated against total issued share capital, fee like structures will be reinforced.

(4) Implications: rethinking pay as an incentive and focusing device

So what if pay as fee is a more accurate characterisation of market practice than pay for performance? What are the implications for our understanding of top management pay and why does this constitute a problem shift rather than a change of metaphor? The short answer is that conceptualising top management pay as a fee paid on the value of industrial capital managed reframes the whole issue of pay in three ways: first, it redefines the immediate problem of pay and pay incentive structures, second it encourages divergent thinking about pay as an effort focusing device rather than as an output generating device for creating value; third, it opens the way for new thinking by investors about how to simplify top management pay.

From media and public discussion one might suppose that the large amounts paid to senior management (especially non performers) are in themselves a problem. Pay as fee immediately reframes and relativises the problem. If we consider mean and median board compensation in our 123 company sample from the FTSE 250, the result is broadly similar: top management pay in 2007 accounts for 0.4 per cent of market cap in 2004 and 3.1 per cent of current profits. At individual company level, the new question arising is whether this average level of fee deduction from market capitalisation and profit is too high, too low or quite enough.

This question about average fee levels can only be answered by comparisons with other fee earning groups and by considering historical trends. The deductions of top corporate managers are much smaller than those of the new financiers who operate with 2 and 20 models. But the financiers are part of a new world of point value realisation through dealing

in securities companies; while corporate managers have a different operating task and are making their deductions from a modest stream of long run value creation for shareholders of ongoing enterprises. According to the Barclays Capital (2007) *Equity Gilt Study* the long term real return on equities (with reinvestment of all dividends) is no more than 5.3 per cent. It also needs to be emphasised that the present level of deduction of 3.0% of profits in the FTSE 250 is not an established norm but part of a rising trend because top management pay has been increasing at double digit rates for most of the past 20 years; and cannot continue to increase at this rate without becoming excessive and trenching on what we understand as the shareholder's right to residual income. If we consider current average fee deductions in historical context, our argument leads to the conclusion that they are quite high enough and one of the aims of Non-Executive Directors (NEDs) in remuneration committees should be to cap the percentage take or at least inflect rates of growth downwards.

But our pay as fee analysis also highlights a second cause for concern at group level about the variation of fees with company size and the undisclosed market cap bias which is built into individual remuneration schemes and revealed by consideration of group trends. In the old accounts of managerial capitalism by Marris (1964) and Galbraith (1967), top corporate managers were theoretically credited with discretionary empire building objectives; in the new world of financialized management after shareholder value and corporate governance, top corporate managers are being practically incentivised to empire build. If top management pay is scaled according to company size with in a group like the FTSE 250, executives are implicitly incentivised to do acquisitions which make the company bigger. It is probably better to have market capital (rather than sales turnover) as the relevant pay related measure of size. But the limits of any size related incentive principle are obvious when acquisitions could simultaneously increase market capitalisation but destroy shareholder value, for example if they reduce ROCE. If shareholders do not want larger companies with more mediocre returns, then Non Executive Directors need to think again about the pay for size incentives for empire building by top managers.

If incentive pay needs to be rethought, maybe we also need to think more fundamentally about mechanisms, levers and causal linkages as much as about the variables in the incentive schemes. Earlier discussion of pay for performance assumed or asserted that properly incentivised management could and would deliver more shareholder value. As we have argued elsewhere (Erturk et al., 2007) that kind of pay for performance outcome has not been achieved and probably could not be achieved; this study now adds the observation that pay practice runs on different principles. Maybe top management pay is not a way of reliably generating external outcomes like higher ROCE or share price increases where the whisky of management effort is drowned by the water of conjunctural happenstance. But, in this case, pay could still be a way of focusing management attention on controllable internal variables. Should the focus be less on financial outcomes influenced by exogenous externals and more on the company and industry specific drivers of value creation which will often be non financial?

The fee perspective therefore opens up some really big issues where we can expect disagreement and vigorous debate which is a good thing if it encourages academics and practitioners to move beyond pay for performance. But the fee perspective is also important because it immediately encourages modest, practical changes in pay disclosure and pay setting where we would expect that many members of the investor, NED and practitioner community could agree.

The fee perspective opens up new possibilities of controlling top management pay within a simpler system where investors would need to spend less time trying to understand the increasingly complex pay packages now being reported at ever greater length in corporate reports. Investors' attention can be refocused onto the intelligible main issue of the pay fee, how it varies and what should be the upper limit on the top pay charge on capital and profits.

Changes to disclosure rules could be used in order to better highlight the connection between pay and size. Within the pay setting process, there should be closer scrutiny of established practices like benchmarking and median chasing within comparator groups which encourage ratcheting of pay. Incentive design will always be tricky because of issues about ‘incentivisation for what?’, and we could envisage debate about the emphasis on equity holding, very long term performance, and strategic short term indicators. But the fee perspective does also open up the possibility of dramatic simplification of top management pay in ways which would increase transparency and accountability. After all, in any company, what the remuneration committee needs to decide, and what investors need to accept, is that (going forward for the next three years) the company’s top pay should account for no more than x% of market cap or y% of current profits.

(1) Appendix on data, definitions and methods

The study is based on a KPMG dataset on the FTSE 250 group of mid caps. Our analysis is of a sample of 123 “survivor” companies which were included in the FTSE 250 of both 2004 and 2007 (but not necessarily continuously included in the index). Firms which reached a market cap of more than four times their 2004 level, or decreased to less than half 2004 level, are excluded. Such firms are likely to have grown by major acquisition or shrunk through major divestment, and are not essentially the same firm. Investment trusts were excluded and so were a further two observations of dubious accuracy. This leaves 123 observations in a group whose characteristics are summarised in table 2 below.

Table 2: Characteristics of 123 company sample from the FTSE 250 (firm size, board compensation, turnover and profit before tax).

<i>Variable</i>	<i>N</i>	<i>Mean</i>	<i>Median</i>	<i>Std.Dev.</i>	<i>Min</i>	<i>Max</i>
Total Board Compensation 2007 £m	123	3.25	2.67	2.49	0.69	20.55
Market Cap 2004 £m	123	787.87	603.78	532.69	184.75	2864.51
Market Cap 2007 £m	123	1279.69	1103.98	687.43	432.59	3111.29
Turnover £m	123	1042.66	717.20	1005.68	20.22	5101.00
PBT £m	123	106.33	85.60	79.39	-121.30	469.15

The KPMG dataset includes data on companies by name and FTSE sector sourced from Datastream, Bloomberg and Hemscott. The data covers market capitalisation in 2004 and 2007, turnover 2007, profit before taxation 2007, CEO base salary 2007, total CEO compensation 2007, and total board compensation 2007. Total compensation includes three elements: (a) base salary (b) annual bonuses payable for the year, excluding joining and leaving awards and (c) the present expected value of all deferred bonuses or long term incentive awards (including stock options or any other long term incentives) granted during the year.

The emphasis in (c) is on calculating in the year of award the projected value of deferred pay at the end of the vesting period, that is, we assume maximum deferral. Actual outcomes will of course depend on the executive’s tactical decisions about when to exercise the options in relation to varying share prices. We assumed a share price growth of 10% over the awards’ vesting period for share based elements and this fits reasonably with 2004-7 trends in share prices. The expected value of performance shares and options was then estimated for the individual grants using a combination of a binomial pricing model (which takes into account factors such as risk-free rate, dividend yield, volatility and expected term) and a discount factor relating to the performance conditions specific to the actual incentive plan.

The text reports correlations between pay and company size using the OLS method. As a cross check and source of additional information, this appendix reports results for robust regression and quantile regression models. If the variables are highly skewed, even following

log transformation, OLS models will generate biased results because OLS models track outliers. The two other models use different methods to deal with the influence of outliers.

With the robust regression procedure provided by STATA 9.2, outliers are down-weighted while observations with high leverage (Cook's *D* statistics > 1) are automatically discarded. In the table below this reduces the coefficient on market capitalisation compared with OLS which on a robust regression basis is .265; which means that just one firm had a certain amount of leverage.

The quantile regressions show that the relationship between board compensation and market cap and profit before taxation varies, as the board compensation variable increases. OLS estimates look at the mean of the conditional distribution, while quantile regressions allow analysis at more than one point of the conditional distribution – for example, the median and the lower and upper tails. In table 3 below, the first column of quantile regression shows how at the first 5% of values for board compensation, board compensation varies with the explanatory variables; the second how it does so at the first quartile, the third at the median value, the fourth at the third quartile, and the final column at the 95% level. The range of

Table 3: Variation of FTSE board compensation 2007 with different variables

<i>Variable</i>	<i>OLS</i>	<i>Robust regression</i>	<i>Quantile regression (5%)</i>	<i>Quantile regression (25%)</i>	<i>Quantile regression (50%)</i>	<i>Quantile regression (75%)</i>	<i>Quantile regression (95%)</i>
Constant	-2.075*** (0.535)	-2.677*** (0.662)	-0.748 (0.767)	-1.91** (0.654)	-1.37** (0.559)	-1.977*** (0.350)	-1.388 (1.771)
Market Cap 2004 (log)	0.320*** (0.073)	0.265*** (0.074)	0.170** (0.085)	0.349*** (0.098)	0.266** (0.084)	0.356*** (0.053)	0.268 (0.217)
Profit before Taxation (log)#	0.189** (0.078)	0.362** (0.147)	-0.016 (0.065)	0.066* (0.037)	0.127** (0.045)	0.171*** (0.033)	0.270 (0.198)
Adj. R ²	0.207						
Pseudo R ²			0.042	0.154	0.115	0.175	0.114
N	123	122	123	123	123	123	123
F	16.99	20.52					

*** significant at the 1% level ** significant at the 5% level * significant at the 10% level.

Because there are three loss-making companies in the sample, a constant was added to attain positive values, enabling them to be treated logarithmically.

§ The Breusch-Pagan test indicated that the null of constant variance could not be rejected: therefore we can reject the presence of heteroskedasticity.

values for the coefficient on market capital and profit before taxation also change along the range of values for board compensation; furthermore, the variables are less significant at the lower and upper end of the distribution. There may be firm-specific factors at play here or unobserved factors which we have not been able to capture; alternatively, the data may simply be too noisy for the variables to be significant at the tails of the board compensation distribution. The quantile method gives stronger correlations at the first and third quartiles.

The text reports the results of OLS modeling of 2007 board compensation against 2004 market cap. Table 4 below shows that 2007 market cap gives a worse fit. However, the Breusch-Pagan test for heteroskedasticity rejected the null of constant variance at the 99% level. While the coefficients (betas) are unbiased, the standard error is likely to be underestimated and t statistics overestimated; namely the model is not efficient.

Table 4: OLS model of 2007 total board compensation using 2007 market cap as variable:

<i>Variable</i>	<i>Coefficient</i>
Constant	-2.498*** (0.614)
Market Cap 07 (log)	0.374*** (0.088)
PBT (log)	0.165** (0.081)
Adj. R ²	0.202
F	16.41

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