

**[Alexander Pepper](#), Julie Gore and Alf Crossman**  
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**Are long-term incentive plans an effective and efficient way of motivating  
senior executives?**

**Alexander Pepper\*, Julie Gore and Alf Crossman**

**Correspondence to:**

**Alexander Pepper\***  
**The London School of Economics and Political Science**  
**Houghton Street**  
**London, UK**  
**WC2A 2AE**  
**Email: [a.a.pepper@lse.ac.uk](mailto:a.a.pepper@lse.ac.uk)**  
**Tel: 020 7 106 1217**

Julie Gore  
University of Surrey  
Guildford  
Surrey UK  
GU2 7XH  
Email: [j.gore@surrey.ac.uk](mailto:j.gore@surrey.ac.uk)  
Tel: 01483 876375

Alf Crossman  
University of Surrey  
Guildford  
Surrey UK  
GU2 7XH  
Email: [a.crossman@surrey.ac.uk](mailto:a.crossman@surrey.ac.uk)

**Are long-term incentive plans an effective and efficient way of motivating senior executives?**

**ABSTRACT**

Research on senior executive reward has typically explored the connection between pay, performance and the alignment of interests of executives and shareholders. This paper examines the relationship between reward and motivation, drawing on the psychological, behavioural economics and decision-making literatures. Based on two empirical studies of FTSE350 senior executives, the research examines whether long-term incentive plans are an effective and efficient way of motivating executives, taking into account risk, time discounting, uncertainty and fairness. It also addresses the shape of the senior executive pay-effort curve. The paper concludes that the way executives frame choices, perceive value, assess probability, evaluate temporal effects and respond to uncertainty means that LTIPs are generally not efficient and are often not effective in meeting their objectives. It proposes that, in its current form, principal-agent theory does not provide a sound basis for modelling senior executive reward, and suggests five areas for development.

*Keywords*

Expectancy theory, extrinsic motivation, intrinsic motivation, principal-agent theory, prospect theory, senior executive reward

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**INTRODUCTION**

In 1995 the Greenbury Report recommended that UK companies should adopt performance-related long-term incentive plans for senior executives, preferring them to traditional share options (Greenbury, 1995). The Greenbury Report pointed out that stock options had a number of shortcomings: they sometimes led to windfall gains simply as a result of general movements in share prices and they did not encourage directors to build-up significant shareholdings in their employing companies. Another drawback became apparent during the bear market of the early 1990s, when the general fall in stock prices resulted in large numbers of underwater options which was very demotivating for option-holders.

Reuters Group plc was the first UK listed company to adopt the new style of long-term incentive plan in 1993. After 1995 many other UK companies followed suit, influenced by the Greenbury report as well as the withdrawal of tax relief for share options granted over shares with a market value in excess of £20,000 in the 1995 budget. Since that time, having an LTIP as a major element of a company's executive reward programme has become generally accepted as best practice among UK listed companies. In 2009 LTIPs comprised around 38% of the total earnings of executives in the FTSE 100 and 33% in the FTSE mid-250 (IDS, 2010).

While designs vary, in the UK today LTIPs typically take the form of an award of deferred shares which vest over a three year period conditional upon the satisfactory achievement of a number of financial performance targets. These are often relative measures, benchmarked against either an index or the financial performance of a number of comparator

companies, so that the extent to which awards vest is dependent upon a company's financial performance relative to the market.

LTIPs have two primary objectives: first, to align the interests of executives and shareholders in order to minimise both agency risk and the associated agency, and secondly, to recruit, retain and motivate senior executives to maximise their effort and give high performance. These are referred to hereafter as the "alignment" and "motivation" objectives.

For some years there has been disquiet about how successful LTIPs are in meeting their two primary objectives. Criticisms by executives, investors or the public generally include: the assertion that complex designs make LTIPs very hard to understand; performance targets are perceived to be undemanding, or too demanding; the performance of comparator companies has an undue impact on performance targets; and the total amounts ultimately paid-out are perceived to be too high. One of the paradoxes about LTIPs is that self-evidently all these points of view cannot be easily reconciled.

This paper examines whether long-term incentive plans are an effective and efficient<sup>1</sup> way of motivating senior executives, while at the same time exploring other behavioural aspects of senior executive reward systems. It argues that it is short-sighted to focus on the alignment objective without also considering the motivation objective, on the basis that the interests of shareholders and executives cannot be aligned if executives are not properly motivated to maximise their effort and give high performance. It proposes that more attention should be paid to the motivation objective by economists and other management theorists.

The rest of the paper is organised as follows. First, we consider the literature on senior executive reward and work motivation, developing a theoretical framework which underpins the empirical work and constructing a set of three research propositions. Secondly, we describe a qualitative research study (Study 1) which was carried out at the same time as the

literature review and was designed, on an essentially inductive basis, to identify major research themes. Next, we describe a quantitative research study (Study 2) which, drawing on the themes identified by the literature review and in Study 1 and employing techniques from the psychological, behavioural economics and decision making literatures, seeks to advance our understanding of some behavioural aspects of LTIPs. The paper concludes by considering the implications of our findings for the development of principal-agent theory as it applies to senior executive reward.

## **THEORETICAL ANALYSIS**

### **The place of motivation in principal-agent theory**

The dominant theory which has historically underpinned research on senior executive reward in general and incentives in particular is principal-agent theory (Jensen & Meckling, 1976; Jensen & Murphy, 2004; Murphy, 1999). This theory focuses on the separation of ownership and control and hence on the importance of incentive contracts to help to align the interests of shareholders and managers. The underlying assumptions are that organisations are profit-seeking, that agents are both rational and rent-seeking, and that there is no non-pecuniary agent motivation (Besley & Ghatak, 2005). It is assumed that an agent's utility is positively contingent on pecuniary incentives and negatively contingent on effort. It is postulated that effort and motivation increase monotonically with additional reward. The pay-effort function is therefore presumed to be a straight line with a positive gradient proceeding from bottom left to top right.

Principal-agent theory places less emphasis on the objective of motivating agents (whether extrinsically or intrinsically) than it does on alignment. Kreps (1997) contends that for the purposes of economic analysis it is not necessary to postulate the concept of intrinsic motivation, on the basis that what is called intrinsic motivation may in fact be no more than a

series of vaguely defined extrinsic motivators. Besley and Ghatak (2005) argue that there is such a thing as a “motivated agent” whose economic behaviour is affected by intrinsic motivation; however, their argument is directed towards employees of public sector or non-profit organisations which provide collective goods and whose activities coalesce around a “mission”.

Deci and Ryan (1985) argue that the importance of intrinsic motivation should not be underestimated. They challenge the idea that intrinsic and extrinsic motivation are either independent or additive, arguing instead that contingent monetary reward might actually cause a reduction in intrinsic motivation. In a similar way, Frey and Jegen (2001) postulate that in some cases extrinsic motivation can “crowd-out” intrinsic motivation: extrinsic rewards might actually detract from intrinsic motivation as people become distracted by monetary incentives, particularly if they are badly designed. Frey and Jegen argue for a strong form of crowding-out whereby an increase in extrinsic reward leads to an overall reduction in total motivation. Alternatively, a weaker form of crowding-out can be postulated, whereby the level of total motivation is maintained only if the increase in extrinsic reward more than compensates for the reduction in intrinsic motivation. Weak crowding-out is consistent with the economic concept of the diminishing marginal utility of increasing wealth (Markowitz, 1952).

The theory of work motivation most commonly used in investigations into the motivational impact of pay and monetary incentives is expectancy theory (Vroom, 1964). According to expectancy theory, motivational force is a function of valence, instrumentality and expectancy. Vroom expressed his central theory in two linked propositions: first, an outcome (j) acquires valence ( $V_j$ ) because of its perceived instrumental connection ( $I_{jk}$ ) to another valent outcome ( $V_k$ ); secondly, the motivational force ( $F_i$ ) on a person to act is equal to the product of the expectancy ( $E_{ij}$ ) that an action (i) will be followed by a particular

outcome (j) and the valence of that outcome ( $V_j$ ). Expectancy (a measure of expected probability) takes values between 0 and +1.

Steele and König (2006) suggest a modified version of the expectancy-valence formula by combining the valence for j ( $V_j$ ), the valence for k ( $V_k$ ), and the instrumentality that j will lead to k ( $I_{jk}$ ), together into a single factor which they call simply “value”. Put simply, the value which a person attaches to a particular outcome j is a function of its instrumentality to achieve a second outcome k and the valence which the person attaches to that second outcome. In this way the expectancy theory formula can be reduced to the following:

$$F_i = E_{ik} \times V_k \quad (1)$$

The motivation of a person to do i is the product of her expectancy that i will lead to k (via j), and the value which she attaches to k.

Economists will recognise equation (1) as an expected utility function. Vroom’s move in the 1960s was to turn an economic theory of rational choice (expected utility theory) into a psychological theory of motivation (expectancy theory). Steel and König’s revision of expectancy theory comes as part of their proposal for an integrative theory of motivation which they refer to as “temporal motivation theory” (Steel & König, 2006). This seeks to combine expectancy theory from the literature on motivation with hyperbolic discounting (Ainslie & Haslam, 1992) and prospect theory (Kahneman & Tversky, 1979) from the literature on decision making. By stripping the formula down to its bare essentials, temporal-motivation theory can be represented as follows:

$$F_i = \frac{E_{ik}^{pt} \times V_k^{pt}}{1 + \delta t} \quad (2)$$

where  $E_{ik}^{pt}$  is the expectancy function that act i will lead to outcome k,  $V_k^{pt}$  is the value function for outcome k, and  $\delta t$  is the personal discount factor for the delay between act i and outcome k under hyperbolic discounting. Expectancy and value are both computed in accordance with prospect theory. The formula means that the motivation of a person to carry



out act  $i$  is the product of his expectancy that act  $i$  will lead to outcome  $k$ , and the value which he attaches to  $k$ , discounted for any time delay between the occurrence of act  $i$  and outcome  $k$ . Thus temporal motivation theory has four key elements: expectancy, value, time, and (after prospect theory) different functions for gains and losses. It postulates that motivation can be understood in terms of expectancy and value, weakened by delay, with differences for gains and perceived losses (Steel & Konig, 2006).

### **Fairness**

It is often argued that an individual's satisfaction with their earnings depends not just upon buying-power, but also on how their earnings compare with the total rewards of salient others (Shafir, Diamond, & Tversky, 1997). Akerlof postulates the fair-wage hypothesis, according to which, firstly, workers have a conception of a "fair-wage"; and second, if actual earnings are less than the fair-wage then only a corresponding fraction of normal effort will be supplied (Akerlof, 1982). In support of the fair-wage hypothesis he cites, inter alia, Adams' psychological theory of equity (Adams, 1965).

According to Adams (1965), people seek a fair balance between what they put into their jobs and what they get out of them. He calls these "inputs" and "outputs". People form perceptions of what constitutes a fair balance between inputs and outputs by comparing their own situations with other referents. They are influenced by colleagues, friends and partners in establishing these benchmark and their responses. Inputs include energy, hard-work, loyalty, commitment, intelligence, and skill. Outputs include financial rewards, recognition, thanks, challenge, and opportunities for development and personal growth. Referents may be internal (peers, immediate subordinates, immediate superiors) or external (people doing equivalent jobs in other organisations).

If people feel that their inputs are fairly and adequately rewarded by outputs, the equity benchmark being subjectively perceived from market norms and other reference points, then they will be happy in their work and motivated to keep contributing at the same (or a higher) level. However, if the relationship between the inputs and outputs of the individual and inputs and outputs of their referents is not proportionate, then the individual will be dissatisfied and hence demotivated. Michelman translates these phenomena into economic terms, calling them “demoralisation costs” (Michelman, 1967 p.1214).

### **Three research propositions**

Using the concepts of intrinsic and extrinsic motivation, the crowding-out conjecture, expectancy theory as modified by temporal motivation theory, and equity theory as the theoretical framework, three propositions are advanced:

*Proposition 1:* Long-term incentives are systematically under-valued by senior executives because of the way that risk, value and probability are subjectively assessed, the way that the value of future reward is discounted, and as a result of cognitive responses to uncertainty;

*Proposition 2:* Above an upper threshold level of earnings, extrinsic reward weakly crowds-out senior executives’ intrinsic motivation;

*Proposition 3:* Below a lower threshold level of earnings, inequity aversion resulting from social comparisons of total rewards relative to peers negatively impacts on motivation and leads to demoralisation costs.

## **RESEARCH METHOD**

Inspired by Bewley, who adopted an inductive approach in his examination of wage rigidity: “this inquiry is intended to be exploratory, touching on many issues in order to test existing

theories, to seek new hypotheses, and to see the overall shape of the phenomena associated with [long-term incentive plans]<sup>2</sup>” Bewley (1999, p.16). A mixed methods research approach was taken, involving a largely inductive first part (Study 1), based around a programme of semi-structured interviews and a more analytical second part (Study 2), based on a survey.

## **STUDY 1**

### **Sample**

Study 1 comprised a qualitative study of 15 senior executives from companies in the FTSE 350 using semi-structured interviews. Participants in the study included 4 CEOs, 3 executive directors, 1 other senior executive, and 7 non-executive directors, representing 14 different companies drawn from 7 major industry sectors. Ages ranged from 40 to 69 with a median age of 53. Thirteen of the participants were male and two were female<sup>3</sup>. The participants were identified via the first researcher’s professional contacts, a form of convenience sampling. Data saturation was largely achieved by the tenth interview, consistent with the findings of Greg, Bunce and Johnson (2006).

### **Data collection**

Data was gathered in a series of semi-structured interviews using a proforma interview guide. A thematic grid was used to develop a list of interview topics based on early work on the literature review. A semi-structured interview approach was preferred to a structured questionnaire in order to ensure an appropriate degree of consistency, while at the same time retaining enough flexibility to allow participants to express their views in full. The data was collected during in-depth discussions of around one hour in length. All interviews were recorded and full transcripts were prepared using an external transcription agency. In each case confidentiality was assured.

### **Data analysis**

In total the transcripts ran to approximately 100,000 words, representing nearly 17 hours of interview time. The transcripts were analysed in depth using template analysis (King, 2004). The interview transcripts were read in detail and all apparently significant phrases highlighted and numbered. Then a template was developed, based on the thematic grid and interview guide, combined with an initial impression of issues arising out of the transcripts. All significant phrases were coded against the headings appearing on the template. To some extent this was an iterative process: the template was amended a number of times as new issues emerged from a deeper reading of the transcripts. The template required responses to be categorised and ranked. The results (template headings, answer categories, individual transcript codes and exemplary quotes) were collected in a spread sheet. For reporting purposes, this was further summarised in Table 1.

### **Results of study 1**

#### ***Financial incentives***

The majority of participants in Study 1 regarded financial incentives as important, but not necessarily very important, to business success. Of the two participants in the study who rated financial incentives as very important, one, an executive director and evidently by inclination an entrepreneur, had joined his company during its start-up phase and had helped to grow the business up to and beyond the point of flotation on the London Stock Exchange. The other, a non-executive director, was on the board of a company which had been through a major turn-around, during which time executives had been incentivised with a high-profile private-equity style incentive plan. In other cases the prevailing view was that most executives are driven by a sense of achievement, of being part of a successful management

team, of working in a place where they are in tune with the organisation's values and objectives, and of building a great company, summarised in the words of one participant as "winning". According to this majority view, only a small number of executives are primarily motivated by potential monetary gain, perhaps no more than 10% or 20% according to one HR director.

Nevertheless, financial incentives clearly do matter. Executives wanted to be valued, to be treated equitably or (as a number of them put it) "fairly". Financial incentives are, according to one non-executive, "a necessary but not sufficient condition for motivating executives". As an HR director explained: "the behaviour of the vast majority of people – including senior executives – can be influenced by financial incentives". Another CEO said that intrinsic factors, like achievement, teamwork, status and power, are fundamentally important but only come into play once you are at or above a minimum threshold for financial reward.

Financial incentives serve a number of purposes: in particular, to provide opportunities for creating wealth, as a retention mechanism to discourage executives from looking for employment elsewhere (or at least to increase their transfer price and thus to deter other companies from targeting them), to strengthen engagement and encourage sustained performance, and as a means of "keeping score". The last of these appeared to be especially important in the case of CEOs. Chief executives, competitive by nature, want to know how they are doing relative to their peers. Remuneration is an obvious way of measuring this, as a proxy for wider measures of success. Only two interviewees mentioned the importance of aligning the interests of shareholders and executives, even though this is the primary reason for long-term incentives according to principal-agent theory. In contrast, the use of LTIPs as a retention mechanism was mentioned most frequently.

Short-term incentives (annual bonuses) were generally regarded as very effective by executives and non-executives alike. Participants described them, in comparison with long term incentives, as having much better “line of sight”, meaning that the connection between successful actions and reward is more obvious. Long-term incentive plans, on the other hand, were generally seen as at best only partially effective: indeed, many of the executives in our study felt that LTIPs failed to meet their main objectives. Various reasons were given for this. Commonly cited was the complexity of most LTIPs. One CEO put it rather elegantly as follows:

Deferred share schemes are basically somewhat poorly understood, and pretty arbitrary. In the old days share options were easily understood, but pretty arbitrary. These new schemes are extraordinarily complex... and still pretty arbitrary. That’s the issue.

The same CEO described how a divisional finance director had opted not to join a long-term incentive plan because he had miscalculated the possible benefits, yet had still managed to influence another executive in his decision to sign-up to the plan, because his colleague misunderstood the advice the finance director was giving him. A non-executive placed the onus on boards of directors and HR departments to communicate the value of LTIPs in terms that executives can understand.

A specific problem which participants identified with LTIPs is the use of comparative performance measures, such as relative total shareholder return (TSR). As one CEO said: “I don’t know how to manage relative TSR...you don’t wake up in the morning trying to manage something relative.” With comparative performance targets the choice of benchmark companies becomes critical. An unusually good or bad profit or share price performance by another company can have a disproportionate effect on the basket of comparator companies, especially when no payments are made for below median performance. Takeovers of companies in the comparator group can be particularly distorting. This is the precise opposite

of the “line of sight” argument for short-term incentives: in the case of LTIPs, executives frequently cannot see any causal link between their actions and reward outcomes.

The challenge is that investors are driven by relative measures. They are selecting stocks based on relative performance by category and are worried about beating the average in the shape of an index. However, an HR director pointed out that the starting positions of managers and investors are not the same: “Most shareholders hold a portfolio and are therefore insulated against the capricious nature of shareholder returns. We as executives are not”. Another participant in the study said: “Investors shouldn’t inflict relative performance conditions on companies. They should say, ‘well that’s our challenge to manage’ ”.

The strong consensus among the executives who were interviewed was that using absolute performance conditions, designed carefully and linked to each company’s particular strategic objectives, could significantly enhance the motivational effect of LTIPs. The most appropriate financial metric to use, such as TSR, earnings per share (EPS) or earnings before interest and tax (EBIT), would vary from company to company, but in every case the merit of having an absolute measure trumps relative metrics.

Participants in the study cited a number of other problems with LTIPs. In particular one participant talked about the insistence of the Association of British Insurers, a trade association representing large institutional shareholders, that no LTIP payment should be made unless performance was at or above the median level, which he referred to as “the tyranny of the median”. For reasonably solid defence stocks which are, as another executive put it, “incrementally creating value through incremental good decision-making over time”, this may result in no LTIP payments. The way LTIPs are often configured appears to favour volatile stocks, where large amounts of value are created in one performance period even if it is lost again in the next period.

The effect of non-paying LTIPs is not merely neutral – it can be positively demotivating to hold an incentive instrument which you believe will never pay out. An HR director with particular experience of this problem described it in the following way: “If you get reward wrong it is a much bigger de-motivator than it can ever be a motivator. It’s like walking around a china shop with a sledgehammer in your hands”.

### ***Motivation***

The relationship between intrinsic and extrinsic motivation provoked some discussion. The prevailing view among participants in the study was that, for senior executives, certain intrinsic factors, especially an orientation towards achievement, are important primary sources of behaviour. Power-status and intimacy-teamwork were also mentioned as significant factors affecting the way people behave. In general, however, intrinsic needs or drives were not seen as substitutes for extrinsic rewards: a substantial minimum level of remuneration must be provided. One CEO put it like this:

Once you are at a threshold level on the financial structures, a level which is felt to be fair and appropriate to the market, then [intrinsic factors] become really important...but if you are at a significant discount on the monetary part then the other things will not make up for it.

A number of non-executives commented that very large awards should not be necessary to engage and motivate executives. One company chairman, commenting specifically on the US market, said: “I do not believe, nor have I ever observed, that \$100 million motivates people more than \$10 million, indeed more than \$1 million”. In practice, intrinsic and extrinsic rewards are evidently closely intertwined. The relationship between the two is complex and hard to unravel. As well as providing material benefits, extrinsic rewards are also important sources of information for executives, signals which executives can use to



measure their value relative to their peers, how highly they are valued by their company boards, and even in some cases their self-worth.

### ***Fairness***

A significant number of interviewees talked, on an unprompted basis, about “fairness”. For most of the participants in the study fairness was primarily a relative concept: as equity theory predicts, one way in which rewards are evaluated is by drawing comparisons with other people (Adams, 1965). Who these referent persons were was not always clear. Executives talked generally about “peers”. One CEO referred to second-best options: “fairness is relative to other things I might do as opposed to other organisations”. Only one participant, also a CEO, thought fairness was a wholly irrelevant concept in the context of executive pay.

### ***Summary of the results of study 1***

Evidence from Study 1 supports the proposition that senior executives systematically undervalue long-term incentives. The principal shortcomings of LTIPs which were identified by participants in Study 1 were as follows. First, complexity – you cannot be effectively motivated by something which is too complicated to understand; in particular, in the specific case of relative performance metrics, too much is outside the control of executives and for many companies it is difficult to pick a fully appropriate group of comparator companies anyway. Secondly, the tyranny of the median – the fact that there is typically no pay-out at all for average performance creates the risk of a “feast or famine” incentive, where companies with volatile earnings and share prices do better than steady performers. Thirdly, participants recognised the significance of subjective valuation issues, including temporal discounting.

One of the ways in which financial incentives are important is that they provide a mechanism for “keeping score”, allowing a senior executive to assess how he or she is doing relative to their peers and signalling how they are regarded by their principals. The directness of the link between effort, performance and reward was also remarked upon, encapsulated in the phrase “line of sight”. This corroborates the significance of instrumentality, whether an individual can see a link between effort and performance, one of the principles of expectancy theory (Vroom, 1964). A critical issue here was relative performance conditions, where the vesting of awards depended not only on the financial performance of the executive’s own company (within the executive’s line of sight), but also on the relative performance of comparator companies (outside the executive’s line of sight).

The executives also recognised the existence of a trade-off between intrinsic and extrinsic motivational factors. This was captured in the statement made by one of the participants in the study that a financial incentive is: “a necessary but not sufficient condition for motivating a senior executive”. Once above a threshold level of earnings other factors, including status, power and the need for achievement, assume greater importance.

The final issue related to social comparisons. A notable feature of Study 1 was the number of executives who talked about the importance of “fairness”. Social comparison is evidently an important driver of human behaviour across the whole spectrum of society (Tyson & Bournois, 2005), regardless of income or wealth.

The results of Study 1 are summarised in Table 1. Four major themes are identified. First, the financial cost of an LTIP may be greater than the value perceived by executives because of the way people subjectively assess risk, discount future events and estimate value. Secondly, the complexity of many LTIPs means that they are often poorly understood by executives, which impacts upon the perception of their value: a person cannot be effectively motivated by something which is too complicated to be readily understood. Thirdly, the

relationship between intrinsic and extrinsic motivation is neither linear nor orthogonal: while financial incentives are necessary they are not sufficient for motivating senior executives; above an upper threshold level of earnings extrinsic rewards may crowd-out intrinsic motivation; below a lower threshold intrinsic motivation may be affected by demoralisation costs. Fourthly, social comparisons are critically important: one way in which rewards are evaluated by individuals is by drawing comparisons with the rewards of other people.

TABLE 1 ABOUT HERE

## STUDY 2

### **Sample**

Study 2 comprised a quantitative survey-based study of 75 senior executives from companies in the FTSE 350 using an instrument developed after completion of both the literature review and Study 1. Participants in the study included 11 CEOs, 31 executive directors, and 37 other senior executives, representing 67 different companies drawn from 9 major industry sectors. Ages ranged from 40 to 65 with a median age of 48. Seventy of the participants were male and five were female<sup>3</sup>

### **Data collection and analysis**

The main part of the questionnaire comprised 15 questions on risk, time discounting, uncertainty, fairness and intrinsic motivation, intended to complement Study 1. The questions were based on ideas drawn from the behavioural economics, experimental economics and decision-making literatures. Two questions addressed risk. Three questions were used to test time discounting. Aversion to uncertainty was assessed by two questions. Another pair of questions sought to quantify the amount of extrinsic reward required to

compensate participants for forgoing the intrinsic rewards they would obtain from their “ideal jobs”. The cost of compensating executives for the intrinsic reward forgone from working in their ideal jobs was measured as a discount on current earnings (referred to as the “ideal-job discount”) varying from 0.00 (no discount) to 1.00 (which would imply that the participant was prepared to work for free if intrinsically motivated to work in their ideal job).

The importance of fairness was tested in a number of ways. In particular, two pairs of questions were based on the ultimatum game in which people have to decide how to share a gift of money, which they would forgo if the responder does not accept the proposer’s proposition. The difference between an individual’s maximum offer price and minimum acceptance price, divided by one-half of the amount available for allocation in the game, was used to calculate an index indicating their inequity orientation. Inequity aversion scores potentially varied between 0.00 (low tolerance of inequity) and 1.00 (high tolerance of inequity). The data was investigated using SPSS version 17.0. In practice only descriptive statistics were used in the analysis because of the relatively small sample size.

## **Results of study 2**

### ***Risk, timing discounting and uncertainty***

The results of the questions relating to risk, time discounting and uncertainty are set out in Table 2. Two questions were used to examine risk aversion. One of these questions asked:

Given that the annual bonus of an executive director working for a FTSE mid-250 company is around £185,000 which of following choices would you prefer? (A) 50% chance of receiving £370,000; otherwise nothing; (B) £165,000 for certain; or (C) Indifferent between A and B.

In response to this question, 52 of the 75 participants chose the certain option B, even though the expected value of option A is higher. This is consistent with previous empirical research,

in which a bias towards risk aversion of around 80% of the population being sampled is often regarded as the norm. The results for time-discounting also showed that many of the participants were significant time-discounters. Another question asked:

Given that the median long-term incentive award of an executive director working for a FTSE mid-250 company is around £300,000 per year, which of the following choices would you prefer? (A) A chance of receiving £250,000 tomorrow with a probability of 75%; otherwise nothing. (B) A chance of receiving £400,000 in three years' time with a probability of 75%; otherwise nothing. (C) Indifferent between A and B.

In response, 37 people chose option A (which assumes a 17% financial discount factor in comparison with option B) and 35 chose options B, with 3 people saying that they were indifferent between the two alternatives. In a similar question, where option A was set at £175,000 with a probability of 75% (a financial discount rate of 32%) 21 people chose Option A and 51 chose option B, with 3 people saying that they were indifferent. Using these two results as reference points, it was possible to calculate that a median annualised discount rate of between 18-23% was implied by the answers to the survey. The discount rate applied in practice when valuing long-term incentives for accounting purposes is likely to be much lower. At the present time rates of less than 5% would be more realistic.

The results of the tests on uncertainty aversion (see Table 2 for details) suggested that many senior executives do have a preference for certainty over uncertainty; however, the effect was not as strong as in the case of risk aversion.

TABLE 2 ABOUT HERE

***The relationship between intrinsic and extrinsic motivation***

A pair of questions sought to quantify the amount of extrinsic reward required to compensate participants for forgoing the intrinsic rewards they would obtain from their “ideal jobs”.

After a hypothetical question, participants were asked, relative to their current total earnings, what was the minimum level of employment income which they would be prepared to accept if you were offered their dream management job? The results varied between a minimum discounted of 0.00 and a maximum of 0.92, with a mean discount score of 0.48, a median score of 0.50 and a standard deviation of 0.24. The frequency distribution of the ideal-job discount scores showed a strong central tendency around the mean. It suggests that companies incur a significant cost in compensating senior executives with extrinsic rewards to compensate them for the intrinsic motivation they forgo.

***Fairness***

Four questions (in two pairs) examined the impact of social comparisons by using a hypothetical ultimatum game in which participants were invited to assume the roles of both proposer and responder in turn. The differences between the offer prices and minimum acceptance prices provided an indication of the person’s equity orientation or inequity tolerance and were used to calculate an inequity aversion score. Five participants had negative scores, recording minimum acceptances which were greater than their maximum offers. This is a cautious strategy for a participant who is acting as a proposer, presumably intended to provide a strong incentive for the responder to accept while at the same time implying a significant aversion to inequity when the participant is acting as responder. In each of these five cases the inequity aversion score was set at zero (representing strong inequity aversion) to avoid skewing the results.

After adjusting for these five items, the resulting inequity aversion scores had an inter-quartile range from 0.00 (low tolerance of inequity) to 0.36 (higher tolerance of inequity), with a mean score of 0.22, a median score of 0.16 and a standard deviation of 0.28. The frequency distribution of the overall inequity aversion scores showed a very distinct skew to the left representing a low tolerance of inequity. Another perspective on fairness was provided using the conundrum described by Shafir *et al* (1997 p350). When asked which of two comparable executives working for different firms was more motivated, 46 participants choose the one with the lower absolute salary but the better position relative to internal peers, 13 choose the executive with the higher absolute salary but lower relative position, and 16 participants were indifferent.

## DISCUSSION

The research suggests that the way senior executives assess probabilities and value is significantly affected by risk aversion and time discounting, and to some extent by uncertainty aversion. This contradicts the rational agent assumption which lies at the heart of the principal-agent model. The conclusion, that the value of a long-term incentive, as mentally accounted for by a senior executive, is likely to be less than the amount which the company providing the incentive has to account for as a cost, is consistent with the findings of Buck, Bruce, Main and Udueni (2003), which called into doubt the effectiveness of LTIPs and the agency model even though their research was conducted largely within a conventional microeconomic framework. It raises important questions about how effective, or at least how efficient, long-term incentive plans are as a way of motivating senior executives. The result is a kind of inverted value proposition, because the financial cost of LTIPs is greater than the value perceived by executives.

More generally, the two studies found evidence that, as extrinsic reward increases over and above an upper threshold level, there is a negative impact on intrinsic motivation. Conversely, below a lower threshold level, dissatisfaction with extrinsic rewards caused by unfavourable peer comparisons can negatively impact on intrinsic motivation. These results challenge a second assumption of principal-agent theory, that there is no non-pecuniary agent motivation. It is consistent with the positions taken by institutional and behavioural economists such as Simon (1945/1997), Leibenstein (1966), Williamson (1975), and more recently Thaler (1991) and Ariely (2008), who argue that man is boundedly rational and that the set of model triggers for economic action should be extended to include motivations other than rent-seeking.

A number of conclusions can be drawn about the shape of a typical senior executive's pay-effort curve. The starting point is the standard economic assumption that effort increases monotonically with pay. This is varied at the top end because of weak crowding-out and at the bottom end by demoralisation costs, giving an angled, inverted "S" shape. Thus in the middle range of the curve, effort increases monotonically with additional reward, diminishing above an upper inflection point (when the rate of change of the pay-effort curve accelerates) because of crowding-out, and falling away sharply below a lower inflection point (when the rate of change of the pay-effort curve slows down) because of demoralisation costs.

### **Limitations**

Although the way senior executive is defined means that the population sampled in the two studies is relatively small (estimated at around 5,000 individuals in the FTSE 350), this proved to be a hard-to-access group. Although data saturation was achieved in Study 1, of the 140 people who responded to the survey in Study 2, 65 declined to participate saying that



it was against company policy to do so or they were too busy, leaving a relatively small sample of only 75 participants.

### **Conclusions**

The results of Study 2 appeared to be consistent with the three research propositions: proposition 1 was broadly supported by the responses in Study 2 to the questions regarding risk, time and uncertainty; proposition 2 was consistent with the answers to the questions about the ideal-job discount; and proposition 3 was supported by the responses to the questions regarding inequity aversion. These outcomes were corroborated by the results of the qualitative work in Study 1, as set out in Table 1.

A significant theoretical conclusion which can be drawn is that principal-agent theory, assuming as it does rational, rent-seeking executives and no non-pecuniary agent motivation, does not in its current form provide a sound basis for modelling senior executive reward. A re-theorising of the principal-agent model as it applies to senior executive pay is proposed. This should: (1) avoid the assumption of no non-pecuniary agent motivation and recognise instead the role of intrinsic motivation; (2) take into account the importance of both the motivation and alignment objectives and the interrelationship between them; (3) postulate a non-linear pay-effort function which tails off above an upper earnings threshold (because of crowding-out) and below a lower earnings threshold (because of demoralisation costs); (4) model more realistically the way that agents evaluate non-cash incentives, especially where payment is deferred for a number of years, and; (5) recognise the significant role which inequity aversion has in determining the motivational impact of earnings.

Additional empirical research is required in future to build a robust data set confirming these findings across a range of senior executives, taking into account both role levels and national characteristics. Further theoretical work is required to construct an improved

principal-agent model for senior executive reward systems, incorporating the five development points identified above. We hope that this report of our research will encourage others to join us in pursuing these lines of inquiry.

### Notes

1. For the purposes of this article, something is considered to be “*efficient*” if it causes inputs to be minimised for a given level of output and “*effective*” if it is capable of achieving its intended objectives. We argue that there is a strong logical connection between the two terms. While something can be “*effective and efficient*”, “*neither effective nor efficient*”, or “*effective but not efficient*”, it is not obviously meaningful in any substantive sense to say that something is “*efficient but not effective*”. The meaning of the word “efficient” logically implies that the intended objective has been achieved.
2. Words in square brackets substituted for “wage rigidity”.
3. The fact that the majority of the participants in the two studies were male reflects the lack of gender diversity in the population of company directors generally: see Sealy, Vinnicombe, & Doldor (2009).

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**TABLE 1** *Key themes and exemplary quotes from study 1*

<b>Themes</b>	<b>Definition</b>	<b>Exemplary quotes</b>
Subjective valuation issues	The financial cost of an LTIP may be greater than the value perceived by executives because of the way people subjectively assess risk, discount future events and estimate value.	<i>“LTIPS are an amount of money with a very high discount attached to it”. “I think it is inevitable that people attach a lower discount to near term systems”. “We are paying people in a currency they don’t value” “Most LTIPS and options are windfalls and are discounted”. “From the perspective of executive perception the rewards from an LTIP are difficult to assess and worse can be measuring the wrong thing”.</i>
Complexity	A person cannot be effectively motivated by something which is too complicate to be readily understood.	<i>“The complexity of most deferred share schemes means that they are basically somewhat poorly understood”. “The direct motivation is not there on a day-to-day basis...because of complexity”. “The further you go from what people can control, the more they don’t really understand why they get rewarded”. “Relative TSR is meaningless ...because there is no line of sight”.</i>
The relationship between intrinsic and extrinsic motivation	A financial incentive is a necessary but not sufficient condition for motivating senior executives. Above an upper threshold level of earnings extrinsic rewards may “crowd-out” intrinsic motivation. Below a lower threshold intrinsic motivation may be affected by “demoralisation costs”.	<i>“There are a small number of people who are only motivated by the monetary gain, maybe 20%”. “Once you’re above a threshold level on the financial structures...then other stuff [becomes] really important”. “The role of money is...as a way of keeping the score”. “If the amounts are large enough they can make one lose sight of the intrinsic”. “It seems as if there is a law of diminishing returns”.</i>
Social comparisons and fairness	One way in which rewards are evaluated by individuals is by drawing comparisons with the rewards of other people.	<i>“Internal relativity [is] a big issue”. “The only way I really think about compensation is ‘do I feel fairly compensated relative to my peers?’” “I believe this is true especially amongst corporate executives who appear to be very sensitive to differentials with perceived peers”. “This is definitely true in my experience as an HR director”.</i>

**TABLE 2** Results for risk, time discounting and uncertainty from study 2

Question	Options		
	A	B	C
<i>Risk</i>			
Q1. (A) Gamble £18,000 (p=0.50); (B) £8,000 (p=1.00); (C) Indifferent between A and B.	31 41.33%	41 54.67%	3 4.00%
Q2. (A) Bonus £370,000 (p=0.50); (B) £165,000 (p=1.00); (C) Indifferent between A and B.	19 25.33%	52 69.33%	4 5.33%
Inter-item correlation = .341			
<i>Time</i>			
Q3. (A) Winning £8,000 tomorrow (p=0.75); (B) Winning £18,000 in three years (p=0.75); (C) Indifferent	29 38.67%	44 58.67%	2 2.67%
Q4. (A) Bonus £175,000 tomorrow (p=0.75); (B) Bonus £400,000 in three years (p=0.75); (C) Indifferent	21 28.00%	51 68.00%	3 4.00%
Q5. (A) Bonus £250,000 tomorrow (p=0.75); (B) Bonus £400,000 in three years (p=0.75); (C) Indifferent	37 49.33%	35 46.67%	3 4.00%
Cronbach's $\alpha$ = 0.742			
<i>Uncertainty</i>			
Q6. (A) Winning £18,000 (p=0.50) (B) Winning £18,000 ( $0.25 \leq p \leq 0.75$ ); (C) Indifferent between A and B.	33 44.00%	19 25.33%	23 30.67%
Q7. (A) Bonus £185,000 in three years (p=1.00) (B) Bonus of $100,000 \times P$ in three years ( $\£0.70 \leq P \leq \£3.00$ ); (C) Indifferent	30 40.00%	41 54.67%	4 5.33%
Inter-item correlation = .312			
n = 75			

*Note.* Reliability was assessed for pairs of questions by calculating inter-item correlations and for triplets using Cronbach's  $\alpha$ . Optimal inter-item correlations are in the range .2 to .4 and the Cronbach's  $\alpha$  scale should be above .7