

The Remuneration of Non-Owner Managers in UK Unquoted and Unlisted Securities Market Enterprises: An Empirical Analysis of Firm Specific, Human Capital and Job History Influences

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ABSTRACT. This paper examines the extent to which the remuneration levels of non-owner managers employed by UK small and medium size enterprises (SME) can be explained empirically by a number of firm specific, human capital and job history characteristics. The UK SME sector is very heterogeneous and we test for possible differences in the determinants of remuneration for two distinct groups of firms. One group consists of high-growth firms that achieved an Unlisted Securities Market (USM) listing within 10 years of start-up. The second group consists of similar firms, matched with the USM firms in terms of age, sector and location, that have remained unquoted businesses. The empirical analysis, based upon data obtained from interviews with non-owner managers and the published financial records of their employing firms lodged at Companies House, focuses on comparing the separately estimated remuneration equations for the two groups of managers.

The empirical results indicate that for both groups, the managers' age and qualifications and the asset size and location of their employing firms are significant factors and collectively are able to explain a large proportion of the cross-sectional variance in remuneration. Moreover, the size and

significance levels of the estimated parameters on these variables were statistically identical in the two equations. However, the job history variables, in particular whether or not the manager had previously been employed by a large firm and whether the individual had previously been employed as a manager, were of relatively more importance in explaining the remuneration levels of the USM managers. Though there is a lack of previous empirical research on SME managerial pay, these results are broadly consistent with the expectations derived from the extant theoretical and empirical literatures.

1. Introduction

This paper empirically examines the remuneration of non-owner managers employed by small and medium sized UK enterprises (SMEs). The empirical analysis focuses upon the relative explanatory power of a number of labour market, firm specific and human capital variables with respect to managerial remuneration levels. Non-owning managerial employees have been largely ignored by small firm researchers who, following Bolton (1971), have generally assumed that the owner-manager(s) are the sole managerial resource of the business. Even the large firm literature has tended to neglect middle managers and has concentrated instead on the remuneration of chief executive officers (CEOs). The agency costs associated with the separation of ownership from control characteristic of large firms has focused this research even more narrowly upon the relative incentive compatibility of various contractual arrangements for aligning CEO remuneration with firm performance measures (Main, 1991).

As the CEO and the other board members are normally also the major (or even sole) share-

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holders, much of this large firm research is of limited relevance of SMEs. This close involvement of the owner-manager(s) in the day-to-day operations of the business has, however, important labour relations implications, particularly with respect to relations with managerial employees. SMEs are much less likely than large firms to operate any sort of formal Internal Labour Market (ILM) and employees at all levels are much less likely to be unionised than their large firm counterparts (Brown, Hamilton and Medoff, 1990). Consequently, individual conditions of employment and pay levels are often determined by direct, individual bargaining with the owner-manager.

A potentially large number of firm specific factors such as performance, local labour market conditions, organisational structure, industry, etc., and differences in the managerial functions undertaken by individual managers, will clearly have an influence upon an employee's bargaining power. Differences in the 'quality' of managerial labour recruited, technical skills and other human capital attributes are also likely to have an influence upon an individual's bargaining power and, hence, remuneration level.

Despite these potential sources of diversity, labour markets should provide some degree of commonality between remuneration and the observable attributes of managers undertaking similar functions and responsibilities in similar firms. Individuals are able to compare wages and conditions in other firms and, though adjustment costs may be incurred, are normally free to change employers. Individuals may invest in education and training because employers are perceived to value these and other observable signals, such as experience, as either directly productivity enhancing (Becker, 1964) or as screening mechanisms when recruiting new managers (Spence, 1974).

This paper empirically examines these issues by analysing information obtained from semi-structured face to face interviews with 97 non-owning managers¹ each employed by a different firm. These interviews obtained information on the remuneration, biographical details, educational achievements and job histories of the interviewee. Additional firm specific information was obtained from separate interviews with (at least) one of the directors (owners) of each of the firms and from

the financial statements lodged at Companies House.

We address the heterogeneous nature of the UK SME sector by concentrating the empirical analysis upon a comparison of managers employed by two distinct, though 'matched', groups of firms. One group consists of firms that have experienced rapid growth since start-up. The criterion for 'fast growth' used in this paper is that of reaching the UK Unlisted Securities Market (USM) within approximately ten years of starting to trade.² For each USM company we then identified a 'match' firm which was identical to the USM company in the sense of being in the same trade and region. The 'match' firm was also of similar age and began as an independent business.

The construction of these two matched samples, allows us to examine additional issues associated with high-growth and achieving a Stock Market quotation. One expectation is that, relative to the match firms, the USM firms will have a greater propensity to recruit managers with job histories and other human capital attributes associated with large firms. The empirical analyses test whether, after controlling for differences in firm size and performance, the remuneration of USM managers is higher than that of the match firms, and/or is more greatly influenced by these job history and other human capital variables.

The paper is organised as follows. Section Two reviews existing work on managerial remuneration, labour markets and the SME sector. Section Three outlines the empirical methods to be used to examine SME managerial remuneration and briefly describes the data sources and variables used in the analysis. In section Four results for the empirical models are presented and section Five contains a discussion of the main results and some concluding remarks.

2. Managerial remuneration and the SME sector

Neoclassical economics assumes a frictionless spot market for labour in which workers wages equal their marginal product (see Creedy and Whitfield, 1988, for a review of the area). Workers are assumed to be highly mobile and fully informed and supply their labour to the highest bidder. Labour supply and demand are quickly

brought into a state of equilibrium through workers moving from one firm to another in response to higher earnings.

This perfect information and frictionless model of labour markets has been extensively modified in recent years to incorporate the effects of other factors, such as compensating differentials (Brown, 1980), information asymmetries (Jensen and Meckling, 1976; Fama and Jensen, 1983a, 1983b), unobservable joint products (Alchian and Demsetz, 1972), human capital attributes (Becker, 1964), firm specific training and asset investments (Williamson, 1975, 1984), risk aversion, transactions costs and incomplete contracts (see Wachter and Wright, 1990, for a review).

As noted in the introduction, most of the empirical literature has been primarily concerned with the remuneration of large firm CEOs. The broad conclusion [Blandy and Richardson (1982), Cosh (1975), Jensen and Murphy (1990)] of these empirical studies of large firms is that CEO remuneration is more closely related to the absolute size of the firm rather than to profitability or changes in the market value of the firm [see Baker, Jensen and Murphy (1988) for a review]. It is also clear from a number of recent empirical studies (Murphy, 1986; Bartlett *et al.*, 1992 for the US and Main, 1991, for the UK) that both human capital and firm specific factors, in addition to size and performance also have an influence upon CEO remuneration. Thus, early studies such as Cosh (1975) which modelled CEO remuneration solely in terms of firm performance and size appear to have suffered from an omitted variables problem which may have exaggerated the size and significance of these factors.

Several theoretical models suggest that there is unlikely to be a close relationship between either firm performance measures or individual productivity and the remuneration of middle ranking managerial employees. For example, Lazear's (1979) model provides an explanation of the frequently observed age/wage profile and mandatory retirement practices of many organisations in terms of bonding employees and as a mechanism to deter shirking. Lazear and Rosen's (1981) 'rank-order tournament' model explains pay differentials between hierarchical levels in terms of their incentive effects. Stiglitz's (1987) 'efficiency wage' model also produces similar conclusions.

Thus, the absence of a clear empirical relationship between the performance of the firm and managerial remuneration, together with the observation that the mobility of managers between firms was less frequent than implied by the neoclassical model, has directed attention to the administrative processes within the firm, such as the internal labour market (ILM), that help determine job allocations, specifications and relative wage rates (see, Williamson, 1981; and Milgrom and Roberts, 1992, for reviews).

In their review of the (large firm) empirical studies of the ILM Creedy and Whitfield (1988) show that low rates of job turnover are found in many sectors, and that internal promotion is frequently preferred by firms to the appointment of external personnel. Within the ILM wages are tied to jobs and, in the short term, unresponsive to external labour market conditions. Internal Labour Markets are seen as a response to the problems of information asymmetry, firm-specific investments, moral hazard in effort provision and self-selection on the basis of ability (MacLeod and Malcolmson, 1988). To achieve this ILMs have to be 'credible', by providing individuals with the expectation of having opportunities throughout a career to make progress up a wage hierarchy within the firm. Clearly, because of their much greater size and levels of management, ILMs are most highly developed in large firms. Moreover, large firms also tend to experience more stable intertemporal performance, are much less prone to fail than smaller firms and so are more able to enter into such long-term employment practices without this jeopardising the viability of the business (see Storey *et al.*, 1987 for a review of the area).³

Smaller firms are also less likely to undertake formal management training than large firms [Handy *et al.* (1988)], largely because costs may not be recouped if the worker leaves for a better paid job or can demand a higher wage from his/her current employer. As noted above, however, smaller firms will be less likely than large firms to be able to accommodate such demands. In addition, due to their generally simpler organisational structures, information asymmetries between owners and managers are normally much less in smaller firms than in large firms. In the small firm, the owner/manager is usually more

closely involved in the day-to-day management of the firm than either the shareholders or directors of a large firm and are, therefore, usually able to directly monitor managerial actions (see Fama and Jensen, 1983a and 1983b).

For all these reasons there are strong grounds for believing that current theories and empirical findings of executive pay based upon large firm labour markets will be of limited relevance to understanding the factors influencing the remuneration of non-owning managers in SMEs.

The research which has taken place on the internal organisation and management of small firms in the UK, has focused almost exclusively upon the managerial inputs of the owner-manager [Curran (1986)] because for most small firms ownership and control are fused in the same individual(s). Similarly, owner-managers and their tax minimising behaviour were the focus of two recent empirical studies on the relationship between remuneration and UK small firm performance (Watson, 1990 and 1991). Even so, almost all firms above a certain size (between perhaps 10 and 20 employees) will have individuals who exercise managerial functions but who are not significant residual claimants (owners) of the business. It is these, largely under-researched, individuals that are the focus of this paper.

Information about such individuals is even more sparse [see for example, Crockett and Elias (1984) and Deeks (1972)] than for large firm middle managers. A study by Deeks (1972) of managers in the Furniture industry found that small firm managers were likely to be younger and more mobile than those in larger firms. Deeks found that, despite being on average younger, almost one third of non shareholding small firm managers had worked for more than six companies during their career, compared with studies of larger firms where only 7% or less of managers had worked for six firms or more. Deeks also discovered major differences in the levels of educational attainment between small and large firm managers. Less than one percent of managers in the (small firm) furniture industry were graduates whereas other broadly comparable studies of managers in large firms showed that between 19% and 43% of managers in large companies had degrees. A more recent study, Nicholson and West (1988), also concluded that inter firm moves are

more frequent amongst managers in smaller firms.⁴ However, little or no work has been undertaken regarding the remuneration of middle managers employed by SMEs.

3. Empirical method, sample and variables

Economic agents (firms and workers) are assumed to make use of observable signals (proxies) of likely productivity and conditions of employment. Given the possibilities for opportunistic action, a signal by high quality agents will only be credible if it is either difficult or costly for low quality agents to imitate (see Spence, 1974).

Firms (the owner-manager(s)) demand managers for the characteristics they are likely to provide, so demand for managers depends upon their total remuneration (defined as salary and other emoluments) and their likely productivity. The latter is signalled by skills, training, previous managerial experience, qualifications and track record, all of which are assumed to be difficult for low quality agents to imitate.

Similarly, managers are assumed to have a range of firms to which they could move. Whether they move depends on the characteristics of the firm and the salary and other emoluments on offer. Important signals in this context will be observable characteristics such as past and anticipated firm growth/profits, size, job security and expected career progression. Assume now a range of firms, each with managerial job openings and a range of potential managers, each with a range of human capital characteristics.

Symbolically, demand and supply are:

$$L_d = L_d(W, D); \quad (1)$$

$$L_s = L_s(W, S) \quad (2)$$

respectively, where W = remuneration, and D and S are vectors of demand and supply relevant characteristics.

At equilibrium:

$$W = w(D, S). \quad (3)$$

That is, the level of remuneration will be explained by the vectors of D and S characteristics.

To empirically estimate a remuneration model, an OLS regression of the following form will be used:

$$\ln W = \alpha + \sum_{i=1}^i \beta_i D_i + \sum_{i=1}^i \beta_i S_i + e \quad (4)$$

where, $\ln W$, the dependent variable = log of current pay,

D , the demand vector and

S , the supply vector for managerial labour.

The empirical estimates of the size and significance of the individual β_i 's will indicate those firm and manager specific characteristics that have most influence upon managers' remuneration. However, because our sample includes both USM and Match firm managers, pooled model estimates implicitly assume that the relative importance of each factor (as measured by the individual regression coefficients) are identical for each group.

This assumption, that the remuneration levels of the two groups of managers can be explained by the same estimating equation, will be tested since we expect it to be untrue in respect of one or more of the explanatory variables. One reason for expecting the relative importance of some factors to differ between the two groups relates to differences in firm size and growth since start up and the consequences this has in terms of the types of managers recruited. As discussed below, the USM firms have grown far more rapidly than the match firms since start up. These high-growth firms may be able to attract and retain better 'quality' applicants if potential managers regard past growth and/or current size as an indication that the firm will provide them with a reasonably secure and progressive career. If the high-growth of the USM firms has been partly achieved by recruiting higher 'quality' managers and/or those with large firm experience then, because wages are higher in large firms [Brown, Hamilton and Medoff (1991)], the USM firms will probably have had to pay a significant premium to attract and retain individuals with these desirable attributes.

An additional reason for expecting the two equations to differ relates directly to the use of a USM quotation as the criterion for defining the sampling frame. The move to becoming a USM company usually requires the firm to undergo significant organisational changes and to engage in the recruitment of additional specialist management personnel – particularly in regard to

management accounting and financial reporting functions (Bannock, 1987). This is partly because of the more onerous regulatory and financial reporting requirements associated with a public listing. Just as important is the fact that, in order to obtain a 'fair' market price for the shares sold, the firm seeking a public quotation has to overcome the problem of information asymmetry. Information asymmetries, whereby existing insiders (the owner-manager(s)) know more about the firm's true value than outsiders (potential investors), are likely to be particularly acute in the case of young firms without an extensive trading record (see chapter 8 of Keasey and Watson, 1993 for a review of the issues). One method by which insiders of high value firms can signal this information to outsiders is by appointing managers that are perceived to be of high quality. Hence USM firms may be more likely than private companies, to appoint managers with externally validated attributes such as the possession of professional or high academic qualifications or those with work histories in well known larger organisations.

To test for these possibilities, separate regressions will be estimated for the two groups and, using a Chow test F-statistic, compared to determine whether either the intercept or any of the coefficients differ significantly.

To empirically examine these issues, financial data taken from Company House records and information obtained from separate interviews with an owner and one manager in each of 97 SMEs are analysed.⁵ The present paper is part of a larger project (Wynarczyk *et al.*, 1993) which focuses upon the relationship between the creation of fast-growth businesses and the managerial labour market. The sample was selected by first identifying a group of "fast-growth" independent businesses. The criteria used was the population of firms that had obtained an Unlisted Securities Market (USM) quotation within 10 years of startup. Of the 125 eligible firms identified, interviews were obtained with 60 firms. The distribution of these 60 firms in terms of industrial sectors did not deviate significantly from either the 125 "fast-growth" firms or the total of 605 firms that had achieved a USM quotation since its inception (see chapter 5 of Wynarczyk *et al.*, 1993).

For each of these 60 USM firms we then

attempted to identify a 'match' firm from trade and telephone directories that was of the same age, was an independent business, was located in the same UK region, was operating in the same industrial sector and which had at least one non-director level managerial employee. Difficulties in obtaining suitable matches, meant that in some instances we had to relax one or another of the company age, ownership, location and industry criteria slightly and, even then, we were only able to interview 49 matched firms. Even so, the resulting two groups of firms did not differ significantly from each other on any of the specified criteria.

Although the performance of the firm was not a matching criterion, the USM or "fast growth" sample was approximately 4 times as large as the match firms in terms of employment. However, the "match" sample firms, which were an average of 12 years old (as, of course, were the "fast growers") had an average of 45 employees and, therefore, are far from being either particularly small (four had employment greater than 100) or 'poor' performers when viewed in terms of the performance of the UK small firm sector generally. Due to missing data, the sample used in this paper consists of 97 SMEs, 49 of which had a USM quotation at the time of the interview. Thus, the current sample contains only independently owned businesses, only relatively young firms, none of which are more than 15 years old, and a much higher proportion of fast-growing firms than would be expected from a random selection of UK SMEs.

Though potentially relevant information relating to many more variables than are reported in this paper were collected, several were close proxies for one another. Moreover, they were often highly correlated in the current sample and, given the relatively small sample size, could not all be entered into the estimating equation without causing statistical difficulties. Definitions of the variables used in the empirical estimation of equation (4) are detailed in Figure 1.⁶

Large firm employment alternatives, ability to pay, relative workloads and previous empirical studies all suggest that firm size and profitability will be positively related to managerial salaries. The impact of the PS variable upon total remuneration is expected to be positive if such bonuses are genuine additions to managers' pay over-and-

Ln(W)	log of total remuneration (salary plus bonuses) in 1988,
Ln(TA)	log of Total Assets in 1988,
AP	average pre-tax profit/total assets 1985-88,
PS	annual bonus and/or profit related pay scheme (0/1),
LOC	firm located in London and Southeast region (0/1),
ΣIND	set of 4 industry dummy variables (financial services sector firm, IND1, being the reference category): IND2 = Non-financial professional services sector, IND3 = other services, printing & retail, IND4 = Electronics and Computing, IND5 = other manufacturing.
AGE	managers age in years,
AGE2	managers age squared,
QUAL	possession of first or higher degree, or post-graduate level professional qualification (0/1),
USM	firm having a USM quotation (0/1),
Ext	externally recruited (0/1),
Man	previously held a managerial post (0/1),
Big	previously employed by a large (employment > 500) firm (0/1)

Fig. 1. Variables in the analysis.

above the 'market rate', though its relative importance will depend primarily upon both the number of managers that are in receipt of profit-sharing and other profit-related bonuses and how big a component such bonuses are in relation to total remuneration.

The location (LOC) and industry (IND2 to IND5) variables are included to control for differences in external labour market conditions. LOC is coded 1 if the firm is located in London and the South-East and 0 otherwise and is expected to have a positive coefficient due to the relatively high levels of economic activity in that region during the study period. The four industry dummy variables, IND2 to IND5, are expected to have negative coefficients because managerial remuneration in these sectors are likely to have been lower, *ceteris paribus*, relative to the reference category (IND1, financial services sector firms) which experienced rapid growth in the post 'Big-bang' era covered by the study.

In studies of large firm wage rates, tenure with the firm was often been found to be a highly significant positive influence upon pay. This is because large firms are more likely to operate highly developed ILM's in which managers are internally promoted rather than needing to move outside the firm. In contrast, inter-firm movements are more frequent for SME managers because

internal opportunities for advancement are typically more limited. For smaller firms then, tenure is unlikely to be of much importance in determining the remuneration of non-owner managers. Indeed, tenure could conceivably have a negative impact on pay levels if those managers that are most willing to move firms are also the most able and highest paid individuals.

The inclusion of the AGE and AGE2 variables with positive and negative signs respectively allows the relationship between managers age and remuneration to be non-linear, i.e. age can have a positive effect upon salaries up to a certain age after which greater age may have a zero or negative effect. The inverted U-shape parallels other empirical observations from SME research on age, such as the number of hours worked by the self employed (Rees and Shah, 1994) and the relationship of new firm growth to the age of the proprietor (Storey, 1994; Cressy, 1993).

Human capital theory suggests that externally recognised and validated educational and professional qualifications will be highly valued by firms, not merely for the technical skills and knowledge provided but also as a screening and/or signalling device for recruitment, remuneration and promotion decisions. Hence, it is assumed that QUAL, which is a dichotomous variable coded 1 if the manager holds a degree level and/or a recognised post-graduate professional qualification, will have a positive influence upon remuneration.⁷

The three job history variables, Ext, Man and Big, are all expected to have positive coefficients since remuneration is likely to be higher for individuals that were recruited externally (Ext), held a managerial position prior to their current post (Man) or had large firm experience (Big, defined as previously employed in a firm with employment > 500). Moreover, because high-growth USM firms may value more highly (and/or are more able to attract individuals with) these attributes, we expect the coefficients on these variables to be significantly greater in the USM equation than in the match firm equation.

4. Empirical results

Table 1 presents some descriptive statistics relating to the overall sample and the two sub-samples of managers and their employing firms.

The average remuneration over all of the 97 managers in 1988 was £26,400. However, the average remuneration of the USM managers (£32,100) was significantly higher (2-tail test, $p = 5\%$) than that of the match firm managers (£20,600). Almost 62% of the overall sample had some element of their total remuneration in the form of an annual bonus and/or profit-sharing payment. Such payment schemes appear to be used significantly ($p = 5\%$) more amongst the USM firms (77.6%) than with the match firms (45.8%). The average age of the managers, for both sub-samples, was about 38 years old and though the tenure of the match managers is slightly less than that of the USM managers (2.8 and 4.1 years respectively) the difference is not significant. For the overall sample, nearly half had a degree level and/or a professional qualification, though as can be seen from the Table, the 57.1% of the managers employed by USM firms was significantly greater than the 37.5% of match firm managers.

In terms of the manager's job histories, some 67.0% of the overall sample had been externally recruited, 64.9% had moved (either internally or externally) from an existing managerial post and 35.1% had been employed by a large firm immediately prior to moving to their current jobs (this includes 2 managers that had recently been internally promoted by the largest of the USM firms in the sample). As might be expected from the previous discussion, the proportion of USM managers with large firm experience (40.8%) and with previous managerial experience (77.6%) are significantly greater than that of the match firm managers. Though the relative proportion of managers in the two samples that had been externally recruited was not statistically different, as might be expected for high-growth businesses, the proportion of internally promoted USM firm managers is slightly higher than that of the match firms (36.7% and 29.2% respectively).

In terms of the characteristics of the employing firms, the average asset size and average pre-tax profitability (as a percentage of total assets) of the sample were £12.3m and 13.5% respectively.⁸ Though the average size in terms of assets of the USM sample is some 10 times that of the match firm sample (and is significant at 1% confidence levels) this is largely because the mean of the

TABLE 1
Descriptive statistics

Variable	All managers	USM firm managers	Match firm managers
Remuneration (£000's)	26.4 (16.6)	32.1 (16.8)	20.6** (15.3)
AGE (years)	37.9 (9.3)	37.9 (8.0)	37.9 (10.5)
QUAL (%)	47.4 (50.2)	57.1 (50.0)	37.5** (48.9)
Man (%)	64.9 (48.0)	77.6 (42.2)	52.1** (50.5)
Big (%)	35.1 (48.0)	40.8 (49.7)	29.2* (45.9)
Ext (%)	67.0 (47.3)	63.3 (48.7)	70.8 (45.9)
Years managerial experience	9.0 (8.2)	9.2 (8.9)	8.8 (7.4)
Job tenure (years)	3.3 (3.6)	4.1 (4.1)	2.8 (2.6)
PS (%)	61.9 (48.8)	77.6 (42.2)	45.8** (50.3)
LOC (%)	71.1 (45.5)	75.5 (43.4)	66.7 (47.6)
TA (£m's)	12.3 (24.6)	22.1 (31.4)	2.2*** (5.2)
AP (%)	13.5 (12.0)	16.8 (10.0)	10.0 (13.0)
IND1 (%)	8.2 (27.7)	10.2 (30.6)	6.3 (24.5)
IND2 (%)	39.2 (49.1)	36.7 (48.7)	41.7 (49.8)
IND3 (%)	20.6 (40.7)	22.4 (42.2)	18.8 (39.4)
IND4 (%)	7.2 (26.0)	10.2 (33.1)	4.2 (14.4)
IND5 (%)	24.7 (43.4)	18.4 (39.1)	31.0 (46.8)

Note: Standard deviations in parenthesis

** = significant at 5%

*** = significant at 1%

Test statistics based upon *t*-values for continuous variables and Chi-square values for dichotomous variables.

Definitions:

- Ext recruited externally to current post (0/1).
 Man previously holding a managerial post (0/1).
 Big previously being employed by a firm with > 500 employees (0/1),
 QUAL possession of first or higher degree, or post-graduate level professional qualification (0/1)
 TA total assets (£'000s) in 1988
 AP average pre-tax profit/total assets 1985-88
 PS profit sharing and/or profit related pay scheme (0/1)
 LOC firm located in London and Southeast region (0/1)
 IND1-IND5 industry dummy variables:
 IND1 = financial services
 IND2 = non-financial professional services sector
 IND3 = other services, printing & retail
 IND4 = Electronics and computing,
 IND5 = other manufacturing

USM sample is unduly influenced by a few large outliers. The median asset size of the USM sample is only some five times as large as that of the match sample firms. The average return on assets in the 4 year period up to 1988 was 13.5%, 16.8% and 10.0% for the overall sample, the USM and match firm samples respectively. These differences were, however, not significantly different from one another at conventional confidence levels. In terms of the matching characteristics, slightly over 71% of the sample firms were located in the London and South-East region of England, their average age was 12.5 years and a total of 68% were engaged in service sector activities.

The OLS regression results shown in Table 2 indicate the relative influence upon managers' total remuneration of the various human capital and job history characteristics and employing firm attributes. A pooled model which has been estimated using data on all 97 managers and separately estimated regression equations for each of the two groups of managers are shown.⁹ The pooled model, which is restricted since it assumes that the coefficients for both groups of managers are the same, indicates the overall relationship is significant at 1% confidence levels and that 66.5% of the variance (as measured by the adjusted R^2) in the salaries of the 97 managers has been explained.

The pooled model also appears to be well specified in the sense that all of the coefficients have plausible signs and many are individually highly significant. As in most previous studies of large firm CEO remuneration, the coefficient on the firm size variable ($\ln(TA)$) is positive and highly significant. The pay composition variable, PS, also has a large significant positive coefficient of 0.297. Given the semi-log form of the equation and a joint reference category level of remuneration of approximately £12,000,¹⁰ this implies that, *ceteris paribus*, managers in receipt of profit-sharing and/or other performance-related bonuses can expect to receive an additional £4000 in total remuneration relative to other managers. This does not, of course, imply that these managers bonuses average £4000, but rather, merely that their total remuneration is higher by this amount.¹¹

Despite the fact that almost 62% of the sample had a profit-related element in their total remuneration, overall enterprise average pre-tax profits

over the previous four years (AP) appears not to have any direct influence upon the level of remuneration.¹² Similarly, though all of the industry dummy variable coefficients have as expected negative signs, this level of sectorial analysis appears to be of marginal significance since only one of the four (IND4) is significant at 10% confidence levels. Of the three job history variables, both previously being a manager (Man) and previously working for a large firm (Big) are significant at 10% confidence levels.

The separately estimated equations for the USM and Match firm samples reveal some interesting features. For instance, the USM model is unable to explain as great a percentage of the variance in remuneration as the Match firm model, 51.9% and 70% respectively. Even so, the models have several statistically significant variables in common and all of the significant variables have the same signs in both models. Examination of the two coefficients relating to the managers age in the two models indicates that, *ceteris paribus*, the salary levels of similarly aged managers in both types of firm do not differ significantly within plausible age ranges. Differentiating salary with respect to age reveals that the influence of age is at a maximum at 39.3 years of age in the USM firms and 42.2 years in respect of the Match firms. Moreover, the magnitudes of the highly significant coefficients relating to the managers' qualifications (QUAL), and the size ($\ln(TA)$) and location (LOC) of their employing firms are very similar in both separately estimated equations.

As expected, the main difference between the two estimated remuneration models is the greater relative importance of the job history variables, Man and Big, in determining the USM manager's remuneration levels.¹³ The only other differences between the two estimates appears to be that (a) the USM non-financial sector (IND2 to IND5) firm managers are paid significantly less than those employed by firms operating within the financial services sector, and, (b) for the match firm managers, the composition of their total pay (PS) exerts a more powerful influence than is apparent in the case of the USM managers. The Chow test F-statistic of 1.3 is not, however, significant at conventional confidence levels. This indicates that, overall, the individual equations for determining USM and Match firm managers

TABLE 2
Remuneration model results
Dependent variable (Ln(W)) = log of total annual remuneration

Variables	All managers	USM firm managers	Match firm managers	Coefficient difference
Constant	0.038 (0.09)	-1.300 (1.41)	-0.158 (0.26)	-1.137 (0.24)
AGE	0.099 (5.19)***	0.161 (4.00)***	0.094 (4.56)***	0.067 (0.97)
AGE2	-0.120E-2 (4.94)***	-0.207E-2 (4.11)***	-0.112E-2 (4.55)***	-0.095E-2 (1.11)
QUAL	0.261 (3.40)***	0.264 (3.05)***	0.263 (2.67)***	0.001 (0.01)
Big	0.103 (1.63)*	0.396 (3.30)***	-0.053 (0.62)	0.449 (2.45)**
Ext	0.072 (0.83)	0.213 (1.35)	0.156 (1.62)*	0.057 (0.31)
Man	0.177 (1.91)*	0.312 (2.63)***	0.154 (1.78)*	0.158 (0.87)
PS	0.297 (4.40)***	0.139 (1.20)	0.319 (3.33)***	-0.180 (1.00)
LOC	0.327 (4.52)***	0.314 (3.66)***	0.341 (4.30)***	-0.027 (0.16)
Ln(TA)	0.079 (3.98)***	0.119 (2.67)***	0.082 (2.91)***	0.036 (0.61)
AP	-0.035 (0.15)	-0.033 (0.07)	0.046 (0.17)	-0.079 (0.11)
IND2	-0.214 (1.19)	-0.594 (2.33)**	0.117 (0.71)	-0.711 (2.43)**
IND3	-0.187 (1.02)	-0.432 (1.62)*	0.013 (0.08)	-0.445 (1.39)
IND4	-0.343 (1.70)*	-0.575 (2.12)**	-0.005 (0.03)	-0.570 (1.22)
IND5	-0.212 (1.25)	-0.372 (1.37)**	0.041 (0.28)	-0.421 (1.32)
$\bar{R}^2 =$	66.5%	51.9%	70.0%	
F =	***14.6 _{14,82}	***4.7 _{14,34}	***8.8 _{14,33}	1.3 _{15,67}
Age at which wage is a Max =	41.4	39.3	42.2	

Note: t-statistics based upon White's (1980) asymptotic heteroskedastic consistent covariance matrix estimates.

Definitions:

- AGE managers age in years.
 AGE2 managers age squared.
 Man previously holding a managerial post (0/1)
 Big previously being employed by a firm with > 500 employees (0/1),
 Ext recruited externally to current post
 QUAL possession of first or higher degree, or post-graduate level professional qualification (0/1)
 Ln(TA) log of total assets in 1988
 AP average pre-tax profit/total assets 1985-88
 PS profit sharing and/or profit related pay scheme (0/1)
 LOC firm located in London and Southeast region (0/1)
 ΣIND set of 4 industry dummy variables (financial services sector firm, IND1, being the reference category):
 IND2 = non-financial professional services sector
 IND3 = other services, printing & retail
 IND4 = electronics and computing,
 IND5 = other manufacturing

remuneration levels are essentially identical.¹⁴ The results of interaction tests on each of the individual variables and the constant term, shown in the 'difference' column in the table, with the exception of the coefficient difference on the Big variable (which is individually significant at 5%), confirm this picture. The computed Chow test statistic tests the null hypothesis that none of the 15 parameters (the constant plus the 14 independent variables) differ across the two equations. If, however, the hypothesis is that only the constant term and the three job history variables are likely to differ between the two groups, then a more appropriate procedure would be to compute the Chow-test statistic based only on these four linear restrictions. Even so, the resulting Chow-test F-statistic of 1.9 (with 4 and 78 degrees of freedom) was not significant at conventional confidence levels.

5. Summary and conclusions

Our attempts to model the determinants of USM and Match firm managers salaries has been relatively successful, both in terms of the estimated models' explanatory power and in terms of the plausibility and signs of the significant variables. From the results presented above, it is clear that USM managers are more highly paid than their Match firm counterparts and that a number of individual human capital and firm specific attributes provide important influences upon remuneration levels.

The pooled model is well defined in terms of the significance levels of the individual variables and the high proportion of the variance explained. With the partial exception of the job history variables, there is little evidence to suggest significant differences exist between the two groups in terms of the relative importance of individual variables. The £11,500 average difference in remuneration between the two groups appears, therefore, to be largely due to segmentation in terms of recruitment decisions (i.e. USM firms employ higher quality managers) and differences in firm/job characteristics such as size rather than being due to the two groups having significantly different earnings equations.

Our greater success in explaining the relative salary levels of Match firm managers than USM

managers suggests that there are determinants of USM managers' remuneration which have not been captured by our variables. Whether the inclusion of omitted variables relating to employment conditions or market factors, either internal or external to the firm, would materially improve the explanatory power of the models remains an interesting question for future research. For instance, given the far greater prevalence of profit-related remuneration packages in the USM firms, the addition of a more relevant profit variable would be likely to significantly improve the explanatory power of the USM remuneration model. It may also be that the USM managerial labour market is simply more heterogeneous or, being very young and turbulent, is relatively 'inefficient' in the sense that some managers are simply under or overpaid. Alternatively, our cross-sectional analysis may be too static. Labour markets are not frictionless, moving jobs is often a costly process and agents have to invest considerable energies in seeking out information concerning opportunities elsewhere. Markets may simply take some time to clear.

Our central finding however is that, apart from the job history variables, there is little evidence to suggest that the estimating equations for the two groups of managers differ significantly. In other words, these results suggest that an identical individual with an identical career history and qualifications working in the same location and sector would expect to get paid the same salary whether they worked for a USM or Match company (provided, of course, that the firms were of similar size). It suggests therefore that the large variations in remuneration levels can be largely explained in terms of differences in firm size and the different job history and personal qualities of individual managers rather than whether or not a their employing firm is a high-growth enterprise or one quoted on the Unlisted Securities Market.

Notes

¹ As far as could be ascertained from Companies House records, none of the individuals concerned held any shares in their employing organisations.

² The USM is the UK's junior stock market set up in 1980 in response to the Wilson Committee's (1979) findings of a "equity gap" in relation to SMEs (see Buckland and Davis 1989). It was announced in 1993 that the Unlisted Securities

Market is to close in 1994. In no sense does this weaken the use of the USM in the mid to late 1980s as a sampling frame for fast growing businesses since the USM firms, although of the same age as the Match firms are, on average, four times as large in terms of employment at the time of interview. For full details of the sample see Wynarczyk *et al.* (1993).

³ Also, the ILM literature suggests that because workers recognise future promotion and higher earnings possibilities which will increase the present value of their lifetimes' earnings they are, therefore, willing to accept in the short-run relatively lower wages. For small firms, however, with their relatively high probability of failure, it seems likely that any implicit promises of enhanced future earnings will lack credibility and can be expected to be heavily discounted by small firm employees.

⁴ As noted above, because of the higher rates of small firm failure, it seems likely that some of these job changes will have been non-voluntary.

⁵ The interview data were obtained over a 9 month period in late 1988 to early 1989 as part of an ESRC sponsored program on Managerial Labour Markets (grant number: F20230022). The collection and analysis of the financial data from Companies House was made possible by a grant from the Nuffield Foundation.

⁶ Several other model specifications containing a additional variables, such as company age, management specialism and status, tenure, years managerial experience, formal job training and gender, were tried. However, using the standard F-test methodology, none of these alternative models were as efficient as the model presented in this paper.

⁷ Much "finer" information on the education and professional qualifications of the individuals in the sample was collected and tested. However, due to the small sample size, and the fact that the estimated coefficients on the most numerous categories (first degrees, post-graduate degrees, professional qualifications) were statistically indistinguishable, only the results based upon the aggregated category are reported.

⁸ The definition of profits used in the analysis is reported pre-tax profits. This measure of profits is net of directors fees which often account for some 65% to 70% of the gross operating profits of SMEs (see Watson, 1990 and 1991). Since these payments reflect discretionary profit appropriations by the owner-managers, from both an incentive and ability-to-pay perspective, it is likely that profitability levels prior to directors fees will be the most relevant decision variable. Unfortunately, because of the 1981 Companies Act financial reporting exemptions for SMEs, relatively few of the firms in the sample provided the information necessary for constructing this profit measure.

⁹ Ramsey's (1969) RESET procedure for detecting an unknown form functional misspecification was undertaken for each of the estimated models presented. The resulting test statistics indicated, however, that the null hypothesis of no misspecification could not be rejected at 5% confidence levels.

¹⁰ The reference category includes those individuals where Man, Big, QUAL, Ext, PS, LOC and IND2 to IND5 = 0.

¹¹ Unfortunately, because managers in receipt of such bonuses were not asked to provide details of the actual

amounts or percentages they received in bonuses, we are unable to investigate this further.

¹² However, the lack of significance may also be due to specification difficulties for the profit variable (see note 8).

¹³ The collective incremental explanatory power of the three job history variables were statistically significant ($F = 3.2_{3,34}$, $p < 5\%$) in the USM equation, but not in the case of the match equation ($F = 1.4_{3,33}$, $p > 10\%$).

¹⁴ It could be argued that the relationships between remuneration levels and some of the independent variables are more complex than has been allowed for by this relatively simple additive model. However, additional estimates which included one or more interaction terms to represent more complex relationships did not materially alter the reported results.

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