

**EXECUTIVE REMUNERATION AND FIRM PERFORMANCE: EVIDENCE
FROM A PANEL OF MUTUAL ORGANISATIONS**

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Abstract

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Abstract

The empirical relationship between the remuneration of: the highest paid director (HPD), mean Board remuneration (Director), and the Chairperson of the Board (Chair) and firm-level performance is examined on a panel of mutual building societies over the 1991 to 1996 period. Two measures of performance are employed: profitability and the change in total factor productivity (TFP). A strong positive relationship between profitability and pay is found for the HPD but not for the Director or Chair. The relationship between pay and TFP change is generally weak for all three measures of executive remuneration. A strong relationship between size and the executive remuneration measures is found, particularly for the Director. Although there is evidence of pay being used as a governance device, the pay-size relationship is consistent with managerial theories of the firm. Surprisingly, our results are similar to those reported for joint stock firms.

1. Introduction

A key principal-agent relationship within firms is that between owners and managers. Within the corporate governance literature research has focused on how to attenuate the opportunistic behaviour of managers that is not in owners' interests. Executive remuneration is a potentially potent device by which to attenuate managerial opportunistic behaviour. Research on executive remuneration, however, has largely focused on the senior executives of large public limited companies (e.g. Main et al., 1996; Conyon, 1998). Although Ingham and Thompson (1995a) examine the pay-performance relationship in mutual companies, there is nevertheless still a paucity of research examining the role of executive remuneration in mutual companies.

Unlike public limited companies, mutual companies do not have tradable property rights and so they face weaker market controls (Ingham and Thompson, 1995a). Other corporate governance devices therefore take on a more important role in attenuating managerial opportunistic behaviour. The Board of Directors, for example, plays an important role in monitoring the behaviour of senior executives (Jensen, 1993; John and Senbet, 1998). It is also important that Board members are remunerated in such a way as to serve owners' interests by monitoring senior executives for opportunistic behaviour. Clearly, non-executive Directors have an important role to play in this respect (see e.g. Hart, 1995 and Ezzamel and Watson, 1997), and an important issue relates to the remuneration and incentive structures offered to non-executive directors (such as the Chair of the Board of a mutual building society for example) as opposed to executive directors. This issue is likely to be even more important in mutual building societies, however, as it is not clear that members (owners) interests are best served by an ethos of profit maximisation. To date, however, there has been no

research examining the link (if any) between the remuneration of the Board of Directors, the Chair of the Board of Directors and the performance of mutual firms.

This paper seeks to add to the literature in four ways. First, the measure of remuneration employed includes: salary, profit-related-pay, bonuses, pensions, and any other benefits whereas Ingham and Thompson's (1995a) measure, for example, includes the salary component only. The inclusion of these additional components is important because they may be used to align managers' interests with those of the owners. Second, the relationship between the mean remuneration of the Board of Directors and the performance of mutual firms is explored. Third, the relationship between the remuneration of the Chair of the Board of Directors and the performance of mutual firms is explored. Finally, total factor productivity (TFP) is used as an alternative measure of performance because members are both customers (borrowers and lenders) and owners and do not receive a dividend from profits. Consequently, if managers maximise profits it may not be in the best interests of the members. Thus, building society members may be concerned with the 'best practice' utilisation of resources in order to reduce costs and to facilitate a narrowing of the margin between deposit and lending rates. However, given the dispersed nature of the ownership structure in mutual building societies, it does not necessarily follow that the member's concern with the "best practice" utilisation of resources can be translated into managerial objectives and incentive structures. This problem may well be exacerbated by the relatively opaque nature of efficiency measures and TFP indices, in contrast to the clarity of public information such as profitability (return on assets).

2. Corporate governance issues

The principal-agent problem and moral hazard is at the heart of the corporate governance debate and the separation of ownership and control in firms (Jensen and Meckling, 1976). Managers are employed by owners in order to manage and control firms' resources on owners' behalf. An agency relationship allows managers to indulge in opportunistic behaviour that serves their own interests and not necessarily those of owners e.g. Marris (1963) suggests that managers might empire build and increase the size of the firm because power and prestige are attached to managing a large firm. Corporate governance is concerned with how best to reduce managers' opportunistic behaviour.

Pay is a device by which owners can potentially seek to create financial incentives for managers to attenuate their opportunistic behaviour. Ideally, an employment contract setting pay equal to the marginal product of labour would be written. Company profitability, however, is a consequence of both managerial effort and stochastic factors outside of managers' control. Thus, effort is not perfectly determinable from simply observing company profits. Writing employment contracts, therefore, is problematic due to the difficulties associated with unforeseen contingencies and the principal-agent problem (Jensen and Murphy, 1990).

In both the US and UK, remuneration contracts for senior management contain a variety of components. Jensen and Murphy (1990) suggest that stock options, equity ownership, performance-related-pay and performance-related dismissals can be included as part of remuneration packages in order to provide financial incentives for value-maximising behaviour. This is problematic for mutual organisations such as

building societies, however, as they have no tradable property rights. In essence, the firm does not have a market value and hence the fiduciary duty of management cannot be framed (via stock options and equity ownership) in terms of the maximisation of market value, or shareholder value, as it can in a plc firm.

Within the context of a highly competitive financial services marketplace, and an equally competitive executive labour market, however, building societies might be expected to resort to alternative means of aligning the incentives of management with those of owners within the remuneration package. Clearly, one of the key elements in this respect might be expected to be some form of performance related remuneration. An unusual feature of mutuals, however, is that the customers are typically also the owners and are therefore at both ends of the value chain (Llewellyn, 1997). Opening a savings account and taking out a mortgage simultaneously confers ownership rights. Given that borrowers are best served by lower interest rates, while depositors are keen to attain higher interest rates, this implies that the owners of mutual building societies would generally be better off if their society operated on lower interest margins. In contrast, profit maximisation would tend to imply wider lending margins (subject to competitive conditions), and it is therefore not clear that the interests of owners and managers will be aligned by the use of devices such as performance related remuneration.

It may well be, therefore, that any links between performance and remuneration in mutual building societies emanate from market pressures, both product and executive labour market, rather than from the usual corporate governance / agency channels. Hence, their particular corporate form and unique institutional arrangements,

combined with an increasingly competitive market environment, makes mutual building societies an extremely interesting sector within which to examine the relationship between remuneration and performance.

A further unusual feature of UK mutual building societies is that ownership rights are structured on a one-member-one-vote basis irrespective of the financial stake in the organisation.¹ This creates a potentially severe agency problem because no individual has the financial incentives to monitor senior management and attempt to take sanctions against poorly performing management because of the costs involved and the small reward. Fama and Jensen (1983a, b) suggest that poorly performing managers are disciplined by members' ability to liquidate their ownership stake and reduce resources under managers' control. The effectiveness of this as a control device is questionable because individual members share of either assets or liabilities is normally low (Ingham and Thompson, 1995a).

Although external takeovers can occur within the mutual sector (and the takeover has been used as a means to demutualise), they are quite rare because of the difficulty in forcing a ballot of members. Takeovers tend to be 'friendly' or at the instigation of the regulator to save poorly performing building societies in order to maintain systemic stability. Indeed, Thompson (1997) finds that there is little evidence of a market for corporate control that provides a natural selection process whereby poorly performing managers are replaced by superior performing managers.

¹ This creates a more dispersed ownership structure than that of mutual Savings and Loan associations in the US where depositors are entitled to one vote per \$100 deposited up to a maximum of fifty votes (O'Hara, 1981).

The Board of Directors is the main internal control mechanism through which shareholders can control managers (Shleifer and Vishny, 1988), and, given the problems associated with the dispersed ownership structure, this internal control mechanism is particularly important in mutual building societies. It is the Board's role to scrutinise the highest decision makers in the organisation (Fama, 1980; John and Senbet, 1998). It is, therefore, an important device in ensuring that Executive Directors fulfil their fiduciary duty to owners. It is often argued (in the context of plc institutions) that, although the Board has a fiduciary duty to protect owners' interests, if they do not have a financial interest in the firm and have little to gain from performance gains they may not fulfil their fiduciary duty. As outlined previously, however, it is not self evident that this is the case with mutual building societies. Indeed, it might be expected that there may need to be differential incentive structures for executive and non-executive Directors. The pressures from competitive product and executive labour markets would imply a link between performance and remuneration for the former, while the interests of the members would probably be better served if this link was less strong for the latter. The non-executive Directors would then be better placed to curb any tendency for Executive Directors to be overly concerned with profitability to the detriment of the owners.

A detailed analysis of the relationship between Board remuneration and company performance, and an examination of any differences in this relationship between executive directors (such as the CEO) and non-executive Directors (such as the Chair) is therefore very important in the case of financial mutuals.

3. Empirical model

In Section 2 the issue of remuneration was placed within a principal-agent setting. Firms' owners attempt to write contracts that align management objectives with those of the owners. This can be achieved by making management's remuneration dependent on firm performance (Holmstrom, 1979). The pay-performance relationship is typically specified in first differences (e.g. Jensen and Murphy, 1990; Ingham and Thompson, 1995a; Main et al, 1996). This is because any changes in remuneration should be driven by changes in firm-level performance. In addition, it removes unobservable firm-specific fixed effects. The empirical framework, therefore, is based on a simple regression of the following form for firm i ($i = 1, 2, \dots, N$) in year t ($t = 1, 2, \dots, T$):

$$\begin{aligned} \Delta \ln W_{it} = & \beta_1 \Delta \ln W_{it-1} + \beta_2 \Delta Prof_{it} + \beta_3 \Delta RelProf_{it-1} + \beta_4 \Delta \ln Size_{it} + \theta_t \\ & + \varepsilon_{it} \end{aligned} \tag{1}$$

where Δ is the first difference operator (i.e. $\Delta X_{it} = X_{it} - X_{it-1}$), W_{it} is executive remuneration (more details are in the data section below), $Prof_{it}$ is profitability, $RelProf_{it-1}$ is the relative profitability lagged one year, $Size_{it}$ is the size of the firm, θ_t is a variable capturing factors common to all firms and the general trend in pay setting (it is estimated using a T-1 set of year dummy variables), ε_{it} is a stochastic error term, and the β 's are parameters to be estimated. More comprehensive variables definitions can be found in Table 1.

Following Main *et al.* (1996) and Conyon (1998), the three measures of executive remuneration are lagged one year in order to capture the persistence in executive remuneration over the sample period. Including lagged executive remuneration also aids the removal of serial correlation. Relative profitability is included in the

regression following Gibbons and Murphy (1990) who find that relative performance is a significant determinant of executive remuneration. Relative profitability is included as a pre-dated variable because it captures the notion that managers may be paid for past good performance and it is less prone to endogeneity problems (Canyon, 1998). Relative performance is only realised to pay-setters after all firms' profitability is publicly available. Therefore, there may be a lag in respect of the impact of relative performance on executive remuneration.

Taking natural logarithms of size scales the data and is a practice typical of remuneration studies of this kind, β_4 is therefore interpreted as an elasticity. A significant and positive β_4 is suggestive of managers being rewarded for pursuing size and growth strategies that are not necessarily in owners best interests. In contrast, significant and positive estimates of β_2 are consistent with changes in executive remuneration reflecting changes in firm performance and hence managers being rewarded for improving firm profitability. In addition, a positive and significant β_3 is consistent with executives being rewarded for improving firm profitability relative to their competitors in the same sector.

As outlined in Section 2, the top management in joint stock organisations have a fiduciary duty to maximise shareholder value. Therefore, studies of joint stock companies have used shareholder wealth or stock market performance as a measure of firm performance (e.g. Jensen and Murphy, 1990; Main *et al.*, 1996; Canyon, 1998). In the study of mutuals, however, share price data are unavailable. Hence, we use two alternative measures of performance in this analysis. First, following Ingham and

Thompson (1995a), profitability is employed. Second, experimentation using total factor productivity (TFP) change as an alternative measure is conducted.

Although building societies, as mutual institutions, may have objectives other than profit maximisation, profitability has nevertheless become increasingly important for UK building societies in recent years. Deregulation in the financial services sector has resulted in building societies losing their virtual monopoly position in the mortgage market. Since the early 1980s banks have also been actively competing in this market. Building societies have also faced intense competition in the market for retail deposits. Hence, while building societies do have the scope to pursue objectives that differ somewhat from their plc competitors, this scope tends to diminish as the degree of competition in the key markets intensifies. It is interesting to note in this respect, for example, that the building societies interest rate cartel (which aimed to stabilise interest rates rather than maximise profits) did not survive the entry of banks into the mortgage market in the early 1980s.

It is also relevant to note that many building societies have been raising funds on the wholesale money and bond markets since the mid-1980s. In turn, this implied that building societies came under market scrutiny for the first time. Indeed, many of the larger building societies opted for formal credit ratings in order to allow them to access wholesale funds on finer terms. Hence, given this increased scrutiny by the financial markets, building societies have been forced to become more overtly profit conscious in recent decades. Finally, it has often been argued that, in the absence of a clear profit motive, building societies traditionally followed an objective of asset growth. Even this objective cannot be divorced from the issue of profitability,

however, given the mutual status of building societies. Specifically, given a binding regulatory capital to assets ratio requirement, and a general inability to raise external capital (i.e., via the issue of equity), any given target growth rate of assets would imply a required post tax rate of return on assets. This would ensure that the appropriate level of capital, or reserves in the case of building societies, supported the expanded balance sheet.

Finally, it is important to note that our sample period of 1991 to 1996 covers the period just prior to the “conversion wave” in which most of the larger building societies utilised the option, provided in the 1986 Building Societies Act, of converting from mutual to plc bank status. Clearly, this conversion process would be expected to result in building societies becoming more overtly profit oriented. It has also been argued, by Drake and Llewellyn (1998) for example, that many building societies came under pressure from their members to convert because building societies had hitherto been overly concerned with profitability. The consequence of this was the accumulation of excessive capital (reserves), relative to capital adequacy and growth requirements, the value of which could only be released to members via the plc conversion option.

When TFP is used as a measure of performance the following model is estimated:

$$\Delta \ln W_{it} = \beta_1 \Delta \ln W_{it-1} + \beta_2 TFPch_{it-1} + \beta_3 \Delta \ln Size_{it} + \theta_t + \varepsilon_{it} \quad (2)$$

where $TFPch_{it-1}$ is Malmquist TFP change index lagged one year and the other variables are defined above. TFP change is calculated using Data Envelopment Analysis (DEA), which is a non-parametric approach that involves comparing each individual firm to an efficient frontier that is constructed using all the firms in the

sample. This TFP change index is, therefore, a relative measure and is included in the model in the same manner as relative profitability in equation (1). Hence, in a similar fashion to relative profitability in equation (1) it also captures the notion of managers being rewarded for past good relative performance and alleviates a potential endogeneity problem. More details of the of Malmquist TFP change index and how it is calculated can be found in the appendix.

In order to examine which measure of firm-level performance is dominant, models are estimated that include both profitability and the Malmquist TFP change index. Relative profitability is not included in this model because TFP is a relative measure of performance. Thus a model of the following specification is also estimated:

$$\Delta \ln W_{it} = \beta_1 \Delta \ln W_{it-1} + \beta_2 \Delta Prof_{it} + \beta_3 \Delta TFPch_{it-1} + \beta_4 \Delta \ln Size_{it} + \theta_t + \varepsilon_{it} \quad (3)$$

4. Data

The data is a sample of UK building societies taken from the Thesys database. The UK building society is similar to the US mutual savings and loan institution. Although deregulation has allowed building societies to broaden their activities, building societies still produce remarkably homogenous outputs because of their focus on their core activity i.e. mortgage lending (Ingham and Thompson, 1995b). The database contains only those societies with assets greater than £100 million. The Thesys database contains 82 firms (almost the entire population of building societies in the UK) but is restricted to 46 firms because DEAP 2.1 (the computer programme used to calculate the Malmquist TFP change indices) requires a balanced panel and

because there are some missing observations in respect of the remuneration data.² Some missing observations have been filled, however, using company reports. Data for these 46 firms are obtained for the 1991 and 1996 period.

We employ three remuneration variables in our analysis: that of the highest paid director (*HPD*); the remuneration of the Chairperson of the Board of Directors (*Chair*), and finally the mean level of Board remuneration for a society (*Dir*).³ Although the *HPD* variable is employed in Ingham and Thompson's (1995) analysis, an analysis of the determinants of the *Chair's* remuneration and *Dir* in UK building societies is unique to this study. The executive remuneration literature has tended to focus on the *HPD* (typically the Chief Executive Officer), however, this post title (along with the Chair of the Board) describes the administrative responsibilities of two members of the Board and final decision-making rests with the Board as a whole (Main *et al.*, 1996). Thus, the relationship between the remuneration of the Board of Directors as a whole and the performance of firms is important in order to establish whether the Board of Directors has a financial incentive to behave in owners' best interests. Indeed, Hart (1995) argues that it is important that both executive and non-executive directors have such financial incentives.

Another key feature of the remuneration data is that, whereas Ingham and Thompson (1995a) use salary as their measure of remuneration, the measure used in this study is broader as it includes salary, profit-related-pay, bonuses, pensions, and any other benefits. The inclusion of these other components is important because they may be

² An explanation of how to use DEAP 2.1 can be found in Coelli (1996).

³ For one particular society the remuneration for the chairperson of the board is unavailable for one year. Hence, regressions where the dependent variable is "Chairperson's remuneration" use 5 years of data for this firm and 6 years of data for the remaining firms.

used by the owners of firms to align senior executives objectives with those of the owners themselves.

Descriptive statistics (mean and standard deviation) and definitions of variables used in the analysis are in Table 1. The variables are deflated using a *GDP deflator* found in economics trends (1995=100). Details on the variables used in the DEA analysis are provided in the Appendix.

[Insert Table 1 about here]

5. Results

First-differencing leads to the lagged dependent variable in equations (1) and (2) above being correlated with the error term and is therefore a potential source of bias (Nickell, 1981). This problem is overcome by estimating the models using the generalised method of moments technique proposed by Arellano and Bond (1991). This involves instrumenting the lagged dependent variable, which is in first-differenced form, using the additional instruments of the lags of the remuneration variables in levels. Crucially, this requires the absence of serial correlation in the error term in order for consistent estimators to be obtained. This is indicated by no evidence of second-order serial correlation in the first-differenced error term (Arellano and Bond (1998).

The results of the regressions relating to: the emoluments of the *HPD*; the mean Board remuneration, and the remuneration of the Chairperson are reported in Tables 2, 3, and 4, respectively. The coefficient estimates presented in each table are short-

run estimates and are converted to long-run estimates by dividing them by $(1 - \beta_1)$, where β_1 is the coefficient estimate on the lagged dependent variable. In each table, column 1 reports results where profitability is used as the firm-level performance indicator and column 2 reports results where the Malmquist TFP change index is used as the firm-level performance indicator. Column 3 reports results where both profitability and the Malmquist TFP change index lagged one period are incorporated as performance indicators.

[Insert Table 2 about here]

Results for the *HPD* regressions (Table 2) indicate that the three models perform well according to the diagnostic tests. There is no significant evidence of serial correlation and the instruments pass the Sargan exogeneity test. The included time dummies, capturing unobserved factors affecting all firms, are significant at the 1% level and the Wald tests indicate that the slope coefficients are significant at the 1%, 5%, and 1% levels for the models in column 1, 2, and 3, respectively.

All models reported in Table 2 indicate that size (growth) has a significant impact on the *HPDs'* pay. Columns 1, 2, and 3 indicate that the long run elasticity of *HPD* pay with respect to size is 0.251, 0.209, and 0.243. Interestingly, this elasticity is reasonably close to the elasticity reported for large public companies. Main *et al.* (1996), for example, report an elasticity of 0.31 and Conyon (1998) reports an elasticity of about 0.15. There is stark contrast, however, with the results of Ingham and Thompson (1995a) who find that this elasticity has a negative sign. This

difference in results may be attributable, at least in part, to the fact that Ingham and Thompson (1995a) specify the size variable in levels rather than in first-differences.

Column 1 of Table 2 indicates a strong relationship between profitability and the pay of the *HPD*. The long run return to a 1% increase in profitability as a proportion of total assets is 0.283%. For the mean *HPD* this leads to a £39,741 increase in pay. The rate of return reported here is much stronger than the 0.021% found by Ingham and Thompson (1995a). There are two possible explanations for this. First, Ingham and Thompson (1995a) use an earlier sampling time frame (1986 to 1990), whereas the time frame used in this study is 1991 to 1996. As emphasised previously, UK building societies have tended to place increasing emphasis on profitability in the post-deregulation era. Second, our measure of remuneration is broader, indeed, it includes components designed to increase the sensitivity between pay and performance and therefore to motivate top executives. It is interesting to note, however, that relative profitability appears to have no statistically significant effect on *HPD* pay.

The coefficient for the Malmquist TFP change index reported in Column 2 has a negative sign. This suggests that pay increases are negatively related to changes in productivity. This appears to contradict the profitability result in Column 1. It could be that the *HPD* is seeking to increase profitability because their pay is linked to it but are not concerned about TFP change because their pay is not linked to it. TFP change, however, is a measure of resource utilisation and the results are consistent with the *HPD* increasing profitability at the expense of resource utilisation and, consequently, at the expense of members.

The coefficient estimates for profitability and TFP change reported in column's 1 and 2, respectively, appear to be fairly robust given that there are only small changes when they are both included in the same model, see column 3. In this case, the long run rate of return on *HPD* pay for a 1% increase in profitability is 0.308%. For the mean *HPD* this leads to a £43,252 increase in pay.

[Insert Table 3 about here]

The results in Table 3 are reported without time dummies because a Wald test of the time dummies (*Time*) indicates that they are not statistically significant at the 10% level. There is no significant evidence of serial correlation and the instruments pass the Sargan exogeneity test in all three models. Wald tests of the joint significance of the slope coefficients indicate that they are significant at the 1% level in all three models.

The results in column 1, 2, and 3 of Table 3 indicate a long-run elasticity of *Dir* with respect to firm size of 1.242, 1.214, and 0.578, respectively. The models in columns 1 and 2 suggest that an increase in the size of a society leads to a proportionately larger increase in the mean remuneration of a director on the Board of Directors. There is no evidence of a relationship between *Dir* and profitability and *Dir* and TFP change in any of the models estimated. There is evidence, however, of a small positive relationship between relative profitability that is significant at the 10% level. In the long run, a 1% increase in society profitability relative to the industry average leads to a 0.003% increase in the change in *Dir*. For the mean director this means an increase in pay of £141.573.

[Insert Table 4 about here]

The *Chair* regressions presented in Table 4 indicate that there is no persistence in *Chair* pay because the lagged dependent variable is not significant at the 10% level. They are reported, however, for consistency with the results presented when *HPD* and *Dir* are the dependent variables. All models in Table 4 appear to perform well according to diagnostic tests. Indeed, there is no evidence of serial correlation, the instruments pass the Sargan exogeneity test, and the Wald test of the joint significance of the slope coefficients indicate that they are significant at the 1% level.

Columns 1, 2, and 3 of Table 4 indicate that the elasticity of *Chair* with respect to size is 0.294, 0.388, and 0.348, respectively. The results in column 1 indicate that there is a negative relationship between profitability and *Chair* pay. In the long run, a 1% increase in profitability as a proportion of total assets leads to a 0.240% decline in *Chair* pay. Thus, for the mean *Chair* of a Board a 1% increase in profitability leads to a £8326.08 decline in pay. This suggests that the *Chair*, who is a non-executive Director, has a remuneration scheme with less emphasis on performance related pay than that for the *HPD*, who is an executive director. There are two possible interpretations of this result. First, the *Chair* will not have a financial incentive to monitor executive directors effectively because he/she will have no personal financial gain from improvements in firm performance. Hart (1995) suggests this as one possible reason for non-executive directors being ineffective at monitoring executive Directors behaviour. Second, it supports the hypothesis made earlier that, given the unusual ownership structure in financial mutuals, there may be a particular need for

non-executive Directors to ensure that executive Directors act in the interests of all members and are not overly concerned with profitability. Notwithstanding these arguments, the significant negative coefficient on profitability is not robust to different model specifications because it is not significant in column 3 where $TFPch_{t-1}$ is included instead of $RelProf_{t-1}$.

The results in column 1 of Table 4 indicates that the relationship between *Chair* and profitability relative to the industry mean is positive and indicates that a 1% increase in relative profitability leads to a 0.001% increase in *Chair*. This is a £34.692 increase in pay for the mean Chair of a Board of Directors.

6. Conclusions

This study seeks to add to our understanding of the relationship between the emoluments of top management (more particularly, the highest paid director, the Chairperson of the Board, and the Board of Directors remuneration) and the firm-level performance of UK building societies. This is the first study to examine the empirical relationship between Chair remuneration, Board remuneration and the performance of mutual firms. We employ a broader measure of remuneration and a later sampling period than the previous study by Ingham and Thompson (1995a). Our measure of remuneration includes performance related components. By employing such a measure of remuneration we are able to provide further insight into the ability of contracting to align managers' interests with those of the owners'.

The results for the highest paid director provide some support for pay being determined by profitability. The rate of return on profitability is up to 0.308%

indicating a £43,252 increase in pay for a 1% increase in profitability for the mean highest paid director. This is higher than that reported by Ingham and Thompson (1995a) who find no statistical relationship between profitability and the highest paid director's pay, but is smaller than that for public limited companies. Main *et al* (1996), for example, report a 0.894% rate of return on highest paid director pay for a 1% increase in shareholder wealth. Executive pay in public limited companies, however, can be linked to company performance via share options that are not available in mutual firms.

This result is potentially “double-edged”, however, because it indicates that building societies are operating in a more competitive environment and are therefore becoming more conscious of firm profitability. Excessive profits, however, may be retained and utilised to fund unprofitable growth. Indeed, this is consistent with results showing a negative relationship between mean highest paid director's pay and TFP change because TFP is an index measure of resource utilisation, unlike profitability.

The elasticity of the highest paid director's pay with respect to size (which is reported to be up to 0.251) is of a similar size to that reported for public limited companies (e.g. Main *et al*, 1996; Conyon, 1998) indicating that size is an important determinant of pay-setting in mutuals as well as for public companies. Our results contradict Ingham and Thompson (1995a) who report a negative sign on the elasticity of the highest paid director's pay with respect to size. This could be due to size being included in our model in first-difference form while in Ingham and Thompson (1995a) it is included in levels. The difference in results could also be due to the different sampling periods utilised. The results of this study are based on a later

sampling period to that of Ingham and Thompson (1995a) and size may have become a more important feature of executive pay setting in mutuals because mutuals are operating in a more competitive managerial labour market.

For the mean remuneration of the Board of Directors, the size of the building society appears to be a particularly important and large determinant of pay with a long-run elasticity of up to 1.242. Results for UK joint stock firms indicate an elasticity of about 0.3 or lower (e.g. Main et al, 1996). No statistically significant relationship between pay and either of our performance measures (profitability and TFP change) is found. There is, however, a very weak relationship between last year's relative profitability and the contemporaneous pay of the mean director. The long-run rate of return on relative profitability is 0.003%. This lack of financial incentive is an important reason for the ineffectiveness of the Board of Directors as a device for monitoring executive directors performance (Hart, 1995).

For the Chairperson of the Board of Directors the elasticity of pay with respect to size is estimated to be up to 0.388. There is no evidence that TFP change is a determinant of the Chair's pay. There is, however, evidence of a negative relationship between profitability with the rate of return on profitability being -0.240% . In contrast, last year's relative profitability yields a positive rate of return of 0.001% for the contemporaneous pay of the Chair. Hence, the latter effect is dominated by the negative rate of return on profitability. This suggests that the Chairperson of the Board of Directors does not have a financial interest in improving the profitability of the firm, which is of serious concern from a corporate governance perspective because the Chair holds a key position on the Board of Directors and the result

indicates that they have no financial incentive to perform their function of monitoring executive directors effectively.

The incentive structure of non-executive directors in mutuals, however, may need to be different to that of the Chief Executive Officer (and other executive directors) in order to ensure that profitability is not pursued to the detriment of members' interests. Indeed, this, together with the fact that the Boards of building societies are composed of a mix of executive and non-executive directors, may help to explain the marked difference between the highest paid director and Board of Director results.

Overall, the evidence indicates that there is a strong relationship between executive remuneration and the size of UK building societies, particularly for the mean member of the Board of Directors of a society. This is consistent with managerial theories of the firm (e.g. Marris, 1963) with the pay-setting structure leading to senior executives being rewarded for pursuing the increased size of the firm. The evidence concerning the pay-performance relationship is mixed; however, there is a strong relationship between the remuneration of the highest paid director and profitability.

The results of this study are consistent with a movement towards pay in mutuals being determined more similarly to pay in public limited companies i.e. executive pay has a similar relationship with size and performance. This could be due to deregulation in the mortgage market and increased competition, as well as the fact that building societies have come under greater market scrutiny in bond and subordinated debt markets, and due to the "plc conversion wave" of the 1990s. Additionally, there may

be increased mobility in the managerial labour market leading to a convergence in pay-setting practices between mutuals and public limited companies.

Appendix

A definition of the output-orientated Malmquist TFP change index and a brief explanation of how it is calculated are provided in this section. The Malmquist productivity index is a ratio of distance functions (Caves *et al.*, 1982). Fare *et al.* (1994) and Coelli (1996) define the output-orientated Malmquist TFP change index for firm i ($i = 1, 2, \dots, N$) in year t ($t = 1, 2, \dots, T$) as:

$$TFPch_{it} = \left[\frac{D_{it}(x_{it+1}, y_{it+1})}{D_{it}(x_{it}, y_{it})} \times \frac{D_{it+1}(x_{it+1}, y_{it+1})}{D_{it+1}(x_{it}, y_{it})} \right]^{\frac{1}{2}} \quad (3)$$

where x is a vector of inputs and y is a vector of outputs. This TFP change variable is the geometric mean of two distance functions that are output orientated Malmquist TFP indices calculated for period t and period $t+1$ using the non-parametric Data Envelopment Analysis (DEA) approach. DEA involves comparing each individual firm to an efficient frontier that is constructed from all the firms in any given year in the sample. The Malmquist TFP change index captures both technical efficiency and technical progress. Note that an index value greater than one indicates positive TFP growth while a value less than one indicates negative growth. More in depth details on how it is calculated can be found in Caves *et al.* (1982) and Fare *et al.* (1994).

TFPch is calculated using the DEAP 2.1 computer program (Coelli, 1996). Four inputs are in the input vector x : full time equivalent staff employed (x_1), the net book value of fixed assets (x_2), retail funds (x_3), and non-retails funds (x_4). The output vector y contains three output variables: advances secured on land and property and other commercial assets (y_1), total liquid assets (y_2), and other income (y_3). Descriptive statistics (mean and standard deviation) of these variables are in Table 5.

[Insert Table 5 about here]

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Table 1

Descriptive Statistics of Variables Used in Pay Regressions

Variable	Definition	Mean	Standard Deviation
<i>HPD</i>	highest paid director emoluments (£ thousands)	140.428	87.433
<i>Dir</i>	mean director emoluments i.e. total board remuneration / number of board members (£ thousands)	47.191	33.332
<i>Chair</i>	chair emoluments (£ thousands)	34.692	33.279
<i>Prof</i>	profit on ordinary activities / total assets (%)	0.609	0.194
<i>RelProf</i>	relative profitability i.e. firm <i>Prof</i> in year <i>t</i> / industry <i>Prof</i> in year <i>t</i> (% of mean)	100	31.158
<i>TFPch</i>	output-orientated Malmquist total factor productivity change (Index)	1.113	0.316
<i>Size</i>	total assets (£ thousands)	5584418.259	13834080.03

Note: *TFPch* is included as a change variable rather than in levels like the other variables because it is calculated as a ratio of two distance functions. The other variables are calculated as a change by first-differencing.

Table 2
Highest Paid Director (HPD) Regressions

Independent variables	Dependent variable: $\Delta \ln HPD_{it}$		
	1	2	3
<i>Constant</i>	0.055*** (4.118)	0.178*** (4.501)	0.144*** (4.429)
$\Delta \ln HPD_{it-1}$	0.051** (2.347)	-0.169 (-0.590)	0.048** (2.258)
$\Delta \ln Size_{it}$	0.238** (2.317)	0.244* (1.761)	0.231** (2.187)
$\Delta Prof_{it}$	0.269*** (4.554)		0.293*** (4.364)
$\Delta RelProf_{it-1}$	0.000 (1.140)		
<i>TFPch_{it-1}</i>		-0.079*** (-2.808)	-0.074*** (-3.714)
<i>Serial correlation</i>	-0.915	-0.697	-0.841
<i>Time dummies included</i>	yes	yes	yes
<i>Time</i>	168.847 (0.000)	57.941 (0.000)	155.012 (0.000)
<i>Wald</i>	24.629 (0.000)	8.832 (0.032)	43.102 (0.000)
<i>Sargan</i>	13.681 (0.622)	6.035 (0.197)	14.190 (0.585)
<i>Observations</i>	184	184	184

Notes: (i) Heteroscedasticity robust t-statistics are reported in parentheses. (ii) $\Delta \ln HPD$ and $\Delta Prof$ are treated as endogenous. In columns (1) and (3) lags of $\ln HPD$ and $Prof$ from t-2 to t-4 are used as instruments while in column (2) $\ln HPD$ lags from t-3 to t-4 are used as instruments. Models are estimated by GMM using the Arellano and Bond (1998) DPD98 package. (iii) *Serial correlation* is an Arellano and Bond (1991) test for second-order serial correlation in the first differenced residuals, distributed $N(0, 1)$ under the null of no serial correlation. (iv) *Time* is a Wald test statistic of the joint significance of the time dummies with the probability value reported in parentheses. (v) *Wald* is a Wald test statistic of the joint significance of the explanatory variables (excluding time dummies and constant) with the probability value reported in parentheses. (vi) *Sargan* is a test of over-identifying restrictions distributed as chi-squared with as many degrees of freedom as there are over-identifying restrictions. The null hypothesis is of instrument validity with the probability value in parentheses.

Table 3

Mean Board Regressions

Independent variables	Dependent variable: $\Delta \ln Dir_{it}$		
	1	2	3
$\Delta \ln Dir_{it-1}$	0.392*** (2.737)	0.397 (0.244)	0.109 (0.854)
$\Delta \ln Size_{it}$	0.755*** (4.518)	0.732* (1.732)	0.515** (2.447)
$\Delta Prof_{it}$	-0.152 (-1.036)		-0.105 (-0.843)
$\Delta RelProf_{it-1}$	0.002* (1.876)		
$TFPch_{it-1}$		0.002 (0.016)	0.020 (1.412)
<i>Serial correlation</i>	1.589	0.306	0.399
<i>Time dummies included</i>	no	no	no
<i>Time</i>	5.706 (0.222)	1.791 (0.774)	0.485 (0.975)
<i>Wald</i>	102.079 (0.000)	67.579 (0.000)	78.615 (0.000)
<i>Sargan</i>	9.606 (0.651)	1.586 (0.811)	11.695 (0.470)
<i>Observations</i>	184	184	184

Notes: (i) Heteroscedasticity robust t-statistics are reported in parentheses. (ii) $\Delta \ln HPD$ and $\Delta Prof$ are treated as endogenous. In columns (1), (2) and (3) lags of $\ln HPD$ from t-3 to t-4 are used as instruments while in columns (1) and (3) $Prof$ lagged from t-2 to t-4 are used as instruments. Models are estimated by GMM using the Arellano and Bond (1998) DPD98 package. (iii) *Serial correlation* is an Arellano and Bond (1991) test for second-order serial correlation in the first differenced residuals, distributed $N(0, 1)$ under the null of no serial correlation. (iv) *Time* is a Wald test statistic of the joint significance of the time dummies with the probability value reported in parentheses. (v) *Wald* is a Wald test statistic of the joint significance of the explanatory variables (excluding time dummies and constant) with the probability value reported in parentheses. (vi) *Sargan* is a test of over-identifying restrictions distributed as chi-squared with as many degrees of freedom as there are over-identifying restrictions. The null hypothesis is of instrument validity with the probability value in parentheses.

Table 4

Chair Regressions

Independent variables	Dependent variable: $\Delta \ln Chair_{it}$		
	1	2	3
<i>Constant</i>	0.023 (1.516)	-0.032 (-0.640)	0.010 (0.233)
$\Delta \ln Chair_{it-1}$	0.016 (0.088)	0.077 (0.182)	0.032 (0.183)
$\Delta \ln Size_{it}$	0.289*** (2.662)	0.358** (2.199)	0.345*** (3.081)
$\Delta Prof_{it}$	-0.236*** (-2.736)		-0.036 (-0.427)
$\Delta RelProf_{it-1}$	0.001*** (3.153)		
<i>TFPch_{it-1}</i>		0.032 (0.851)	-0.001 (-0.049)
<i>Serial correlation</i>	-0.609	-0.407	-0.481
<i>Time dummies included</i>	yes	yes	yes
<i>Time</i>	26.414 (0.000)	8.914 (0.063)	12.702 (0.013)
<i>Wald</i>	23.495 (0.000)	8.904 (0.031)	13.874 (0.008)
<i>Sargan</i>	15.558 (0.212)	5.443 (0.245)	13.004 (0.369)
<i>Observations</i>	183	183	183

Notes: (i) Heteroscedasticity robust t-statistics are reported in parentheses. (ii) $\Delta \ln HPD$ and $\Delta Prof$ are treated as endogenous. In columns (1), (2) and (3) lags of $\ln HPD$ from t-3 to t-4 are used as instruments while in column (1) and (3) $Prof$ lagged from t-2 to t-4 are used as instruments. Models are estimated by GMM using the Arellano and Bond (1998) DPD98 package. (iii) *Serial correlation* is an Arellano and Bond (1991) test for second-order serial correlation in the first differenced residuals, distributed $N(0, 1)$ under the null of no serial correlation. (iv) *Time* is a Wald test statistic of the joint significance of the time dummies with the probability value reported in parentheses. (v) *Wald* is a Wald test statistic of the joint significance of the explanatory variables (excluding time dummies and constant) with the probability value reported in parentheses. (vi) *Sargan* is a test of over-identifying restrictions distributed as chi-squared with as many degrees of freedom as there are over-identifying restrictions. The null hypothesis is of instrument validity with the probability value in parentheses.

Table 5

Descriptive Statistics of Variables Used to Calculate the Malmquist TFP Change

Index

Variable	Mean (£ thousands)	Standard Deviation (£ thousands)
x_1	1315.371	3101.782
x_2	54043.484	120292.886
x_3	4032288.161	10117933
x_4	1007320.705	2290948.794
y_1	4409709.957	10927982.34
y_2	975457.554	2349278.955
y_3	39758.846	100722.008