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What Reduces the Impact of Managerial Entrenchment on Agency Costs? Evidence for UK Firms

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What reduces the impact of managerial entrenchment on agency costs? Evidence for UK firms^{*}

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Abstract

This paper examines how managerial entrenchment, defined as the extent to which managers are able to use their discretion and expropriate wealth from shareholders, influences agency costs. Using a cross-sectional regression framework and a large sample of UK listed firms, we show that there is a negative relationship between our inverse proxy for agency costs, namely asset turnover ratio, and managerial entrenchment. However, it seems that the relation between managerial entrenchment and agency costs depends on managerial incentives. Specifically, there is strong evidence that managerial incentive variables, such as executive ownership and market-to-book ratio, moderate the negative relationship between managerial entrenchment and asset turnover.

JEL classification: G3; G32

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1. Introduction

The literature on managerial agency costs emphasizes two important features of the conflicts between managers and shareholders. First, managers have incentives to act in their own best interests, usually at the expense of shareholders. Second, in the absence of perfect contractual relations, effective monitoring and disciplining mechanisms managers increase their ability to do so and they possibly become entrenched. There is a large body of literature investigating the impact of these two characteristics, namely managerial incentives and entrenchment, on corporate policies and hence performance. For example, Friend and Lang (1988) and Mehran (1992) find that those firms with entrenched managers prefer lower leverage ratios. Ozkan and Ozkan (2004) show that managers, especially when they are relatively free of external discipline and entrenched, choose to hold large amount of cash to possibly pursue their own interests. In a study that uses multinational data, La Porta et al. (2000) find that firms operating in countries with better legal protection, where managerial entrenchment is less likely to be a major issue, pay higher dividends. The generally accepted view in this literature is that managerial entrenchment leads firms to adopt suboptimal policies and hence reduces their value.¹

Despite the invaluable insight, this literature has paid little attention to the interaction between managerial incentives and managerial entrenchment as a determinant of agency costs within corporations. In this paper, we consider such interactions by focusing on the distinction between the proxies for managerial entrenchment and those for managerial incentives. Accordingly, two important aspects of the analysis of this paper are to provide a measurement of the extent to which managers are entrenched and to investigate the

¹ Some representative studies include Morck et al. (1988), McConnell and Servaes (1990), Hermalin and Weisbach (1991), Lemmon and Lins (2003), Gompers et al. (2003), Davies et al. (2004).

nature of the relationship between managerial entrenchment and agency costs by considering the possibility that the impact of entrenchment on agency costs may depend on the incentives that are likely to align the interests of managers and shareholders.

The literature that examines the impact of managerial entrenchment on corporate policies has traditionally focused on several corporate governance characteristics. For example, Berger et al. (1997) use alternatively managerial ownership, board composition and managerial compensation structure to capture the effects of managerial entrenchment. There are also studies that focus exclusively on managerial ownership in measuring managerial entrenchment. They incorporate higher order terms of managerial ownership to capture the entrenchment effect. They find that managerial ownership at moderate levels play an alignment role whereas an entrenchment effect is observed at higher levels of managerial ownership (see Morck et al., 1988; McConnell and Servaes, 1990; and Davies et al., 2004 among others). Recent research, however, has put forward entrenchment indexes based on specific corporate governance provisions. For example, Gompers et al. (2003) and Bebchuk et al. (2005) define entrenchment as the set of corporate governance provisions that restrict shareholder rights and provide protection against takeovers. Finally, the ultimate ownership structure of companies is also used to obtain a proxy for managerial entrenchment. For example, Lemmon and Lins (2003) relate managerial entrenchment to the disparity between managerial cash-flow rights and control rights.

In this paper, we derive an alternative measure of managerial entrenchment by combining a set of firm governance characteristics, namely ownership concentration, board size and the ratio of non-executive directors to the total number of directors. To this end, we use principal component analysis to extract one composite entrenchment proxy. By doing so, we mainly aim to control for the problems that may arise from the potential multicollinearity between the governance variables when one includes them independently in a cross-sectional regression (see also Agrawal and Knoeber, 1996).

More importantly, in the second stage of our analysis, we incorporate our measure of managerial entrenchment in the empirical agency model to investigate the impact of managerial entrenchment on agency costs. In this paper, instead of considering a particular corporate policy decision or corporate performance, we focus on the impact of managerial entrenchment on observed agency costs. We use a specific proxy of agency costs, namely the asset turnover ratio, defined as total sales divided by total assets. This ratio is taken as an inverse proxy of agency costs and can also be interpreted as an asset utilization ratio that shows how effectively management deploys the firm's assets. For instance, a low asset turnover ratio may indicate poor investment decisions, insufficient effort, and consumption of perquisites, and hence may suggest that agency costs arising from the conflicts between managers and shareholders are not negligible.²

Our main argument in this paper is that our measure of managerial entrenchment can be viewed as a proxy for the effectiveness of corporate governance mechanisms in controlling costly agency conflicts between managers and shareholders. Alternatively, it can be seen as a measure of the ability of managers to expropriate shareholders in the absence of effective monitoring and disciplining. In both cases, one would expect a negative relation between our measure of entrenchment and asset turnover ratio.

²The asset turnover ratio was first used in the agency context by Ang et al. (2000) and later adopted in other similar studies (see, for example, Singh and Davidson, 2004 and Fleming et al., 2005). Later in the paper, for robustness purposes, we also introduce another proxy of agency costs, namely the ratio of selling, general and administrative expenses to total sales (SG&A).

Note, however, that entrenchment does not necessarily lead managers to engage in value decreasing activities such as exerting insufficient effort and collecting excessive private benefits. Accordingly, we recognize that the impact of managerial entrenchment on agency costs may be moderated by other firm characteristics. For example, it is reasonable to argue that in firms with attractive growth opportunities managerial incentives to expropriate are expected to be lower. This is because in such firms the objectives of managers and shareholders become more aligned (see Jung et al., 1996 for a similar argument in the capital structure context). Also, managers with greater ownership stakes and option-bonus holdings are more likely to make value maximizing decisions (Jensen and Meckling, 1976; Zhou, 2001; Fich and Shivdasani, 2005).

The above argument implies that one needs to consider not only the *main* effect of entrenchment but also the potential *conditional* effect that entrenchment may exert on agency costs through interactions with managerial incentives. Then, the total impact of managerial entrenchment on agency costs, given by the sum of the main and conditional effects, can be lower when one takes into account other incentive factors that may moderate the relation between entrenchment and agency costs. To test this, we introduce in our analysis three firm-specific incentive variables, namely market-to-book ratio, executive ownership and option-bonus holdings and interact managerial entrenchment with these incentive variables.

This paper is related to the studies by Ang et al. (2000), Singh and Davidson (2004) and Fleming et al (2005), which also attempt to investigate the empirical determinants of

agency costs for samples of large US, small US and large Australian firms respectively.³ In particular, they attempt to control indirectly for managerial entrenchment by including independently several variables related to ownership structure, board structure and capital structure characteristics. In line with the findings of prior performance studies, they provide evidence for the view that managerial ownership aligns the interests of managers and shareholders and, hence, reduces agency costs in general. However, as explained above, our approach significantly differs from these studies in that we put forward a uniquely defined entrenchment proxy and clearly distinguish between entrenchment and incentive variables in our investigation of the determinants of observed agency costs.

We also differ from prior research on another important ground in that we provide evidence for UK firms. Although the UK and the US are usually characterized as having a similar "common law" regulatory system, the UK market bears significant distinguishing characteristics.⁴ Most importantly it is argued that several of these characteristics may contribute to a more significant degree of managerial entrenchment and, hence, a higher level of managerial agency costs. For example, despite the relatively high proportion of shares held by financial institutions, there is a great deal of evidence that financial investors do not take an active role in corporate governance. Similarly, UK boards are generally characterized as corporate devices that provide weak disciplinary function. More specifically, weak fiduciary obligations on directors have resulted in non-executives

³ Other studies that estimate empirical agency models include the ones by Doukas et al. (2000) and Doukas et al. (2005). The main emphasis of these papers, though, is on the role of security analysis as an external monitoring device in terms of reducing managerial agency conflicts.

⁴ For a detailed discussion about the characteristics of the UK corporate governance system see, for example, Short and Keasey (1999), Faccio and Lasfer (2000), Franks et al. (2001) and Ozkan and Ozkan (2004).

playing more an advisory than a monitoring role.⁵ Consequently, the investigation of agency issues and the effectiveness of the alternative governance mechanisms in the UK, in a period that witnesses an intensive discussion of corporate governance issues, would be of significant importance. To perform our task, we collect detailed accounting, market and ownership data for a large sample of UK firms over the period 1999-2003.

Our results strongly suggest that our composite proxy for managerial entrenchment, which is a linear function of ownership concentration, board size and non-executive directors, is negatively related to asset turnover ratio. More importantly, we find that the relationship between asset turnover and managerial entrenchment is moderated by managerial incentives. In particular, there is strong evidence that the negative impact of entrenchment on asset turnover is alleviated when managers hold a significant proportion of firm shares and, also when firm's growth opportunities are attractive.

The remainder of the paper is organized as follows: In Section 2 we provide a description of the data. Section 3 explains how we have measured managerial entrenchment using principal component analysis and, also, presents our empirical findings. In Section 4 we conduct several robustness tests in order to ensure the validity of our results. Finally, Section 5 concludes.

2. Data

For our empirical analysis of agency costs and its association with managerial entrenchment we use a large sample of publicly traded UK firms over the period 1999-2003. We use two data sources for the compilation of our sample. Accounting data and

⁵ Empirical studies by Goergen and Rennebog (2001), Franks et al. (2001) and Short and Keasey (1999) provide evidence on the weak role of institutions and board of directors in reducing agency problems in the UK.

data on the market value of equity are collected from Datastream. In particular, we use Datastream to collect information for the following variables : firm size, market value of equity, annual sales, selling general and administrative expenses, total debt, short-term debt and dividends.

For information about firm's ownership and board structure we use the Hemscott Guru Academic Database. This database provides detailed information for each firm for the level of managerial ownership (both executive and non-executive), ownership concentration and size and composition of the board. Despite the fact that data on directors are provided in a spreadsheet format, information for each item is given in a separate file. This makes data collection for the required variables fairly complicated. For example, in order to get information about the amount of shares held by executive directors we have to combine two different files: a) the file that contains data on the amount of shares held by each director and b) the file that provides information about the type of each directorship (e.g. executive director vs. non-executive director). Additionally, we have to take into account the fact that several directors hold positions in more than one UK companies. Similar complications arise when one attempts to collect information about the composition of the board. After matching the two above mentioned databases and excluding financial firms, missing firm-year observations and outliers, we end up with a final sample of 840 firms for our empirical analysis. Table 1 provides the definitions of the variables used in our paper.

[Insert Tables 1 and 2 here]

In Table 2 we report the summary statistics of the variables used in our empirical analysis. The average asset turnover ratio, defined as the ratio of annual sales to total assets, for UK companies is 1.25. The average values of ownership concentration and the ratio of non-executive directors on the board are 34.44 per cent and 47.64 per cent respectively. The average board size consists of about 7 directors. On average, executive directors hold 13.33 per cent of firms' shares. As for the capital structure variables, the average value of leverage, defined as the ratio of total debt to total assets, is 19.50 per cent. We also observe that, on average, 49.91 per cent of total debt matures within one year. Finally, the market to book ratio in an average firm is 2.26 and a significant proportion of firms (56.7 per cent) provides option and/or bonus payments to their executive directors. In general, the descriptive statistics presented in Table 2 are in line with those reported in other UK studies (see Ozkan and Ozkan, 2004 and Davies et al., 2004 among others).

3. Methodology and Results

In this section, we first describe how we measure managerial entrenchment using principal component analysis and then present the results of our empirical analysis.

3.1 Measuring Managerial Entrenchment

As mentioned earlier, we employ principal component analysis to measure managerial entrenchment. There are mainly two reasons for using this methodology. Firstly, principal component analysis enables us to combine several governance variables in constructing a single entrenchment proxy and, therefore, it allows the inclusion of just one composite entrenchment variable in the following empirical analysis rather than a set of governance variables. By doing so, it controls to some extent for potential multicollinearity problems that may arise when several corporate governance and control variables are independently incorporated in the empirical strategy (see, for example, Agrawal and Knoeber, 1996 and Beiner et al., 2004). Secondly, a further advantage of principal component analysis is that it automatically produces weights so that the entrenchment proxy will explain as much of the variance in the group of corporate governance attributes and, therefore, does not require the ex ante determination of the weights. Most of the earlier studies that attempt to establish entrenchment ranking variables rely on the strong assumption that all the corporate governance attributes contribute equally to the entrenchment proxy (see, for example, Gompers et al., 2003 and Bebchuk et al., 2005).

Essentially, principal component analysis seeks to find the latent factors that account for the patterns of collinearity among a set of variables. It extracts a new set of variables (called "principal components"), which are linear combinations of the original variables. The extracted components are ordered in such a way that the first principal component accounts for as much variability as possible whereas the second principal component explains the next largest variation and is independent from the first linear component. There can be as many principal components as there are variables. However, useful components are only those with an eigenvalue that is greater than 1 because such components explain more variance than a single variable.

In our context, in order to measure managerial entrenchment we use a set of variables that are closely linked to managers' ability to use their discretion and expropriate wealth from shareholders. The first such variable we use is ownership concentration. Corporate governance research recognizes the essential role performed by controlling owners or major shareholders in monitoring management. Given that the monitoring benefits are proportionate to their equity stakes, a small or average shareholder has little or no incentives to monitor management. However, shareholders with substantial equity stakes have more incentives to supervise management and can do so more effectively (Shleifer and Vishny, 1997; and Friend and Lang, 1988). Therefore, we expect a lower level of managerial entrenchment in firms with high levels of ownership concentration.

The size and the composition of the board may also impact the level of managerial entrenchment. For example, there is a large strand of literature which supports the view that the effectiveness of the board in monitoring management is an inverse function of its size. The underlying notion in that literature is that larger boards make coordination, communication and decision making more cumbersome and that is why they are less efficient than small boards. Recent empirical studies by Yermack (1996), Eisenberg et al. (1998) and Beiner et al. (2004) provide evidence consistent with that view. Following this literature, we expect managerial entrenchment to be a positive function of board size.

Finally, our analysis allows for an association between managerial entrenchment and the composition of the board. One argument here is that unless a board is independent, managerial monitoring will be weak. Consistent with that conjecture, Rosenstein and Wyatt (1990) propose a positive relationship between the percentage of non-executive directors on the board and corporate performance. Other studies, however, find exactly the opposite results. For example, the analyses by Agrawal and Knoeker (1996), Hermalin and Weisbach (1991) and Franks et al. (2001) support the view that non-executive directors are usually characterized by lack of information about the firm, do not bring the requisite skills to the job and, hence, prefer to play a less confrontational role rather than a more critical monitoring role. In the context of the UK market, we expect the latter rather than the former view to be the case. As Franks et al. (2001) point out, the inability of UK regulatory system to enforce the duties of directors causes non-executive directors to be passive. Characteristically, in their study, Franks et al. (2001) find that "non-executive directors tend to entrench management by reducing board turnover in poorly performing firms" (p. 211). As a result, we expect managerial entrenchment to be a positive function of the proportion of non-executive directors.

Table 3 presents the results from the principal component analysis. In Panel A we report the correlations matrix of the variables that proxy for ownership concentration (CONCENTR), the proportion of non-executive directors on the board (NON-EXEC) and board size (BOARDSIZE). In Panel B we report the eigenvalues of the reduced correlation matrix of these three variables. Although more than one eigenvalue are higher than one, indicating that more than one factor explain more variance than any single variable, we pick the first factor, called "ENTRENCHMENT", which accounts for the highest percentage of variation. This factor is a linear combination of the variables CONCENTR, NON-EXEC and BOARDSIZE and, given its weights, we treat this variable as an increasing function of managerial entrenchment (the underlying eigenvectors are reported in panel C). In panel D we report some descriptive statistics for the variable ENTRENCHMENT.

[Insert Table 3 here]

3.2 Preliminary Findings

In Table 4 we report univariate mean-comparison test results of the sample firm subgroups categorized on the basis of above and below median values for several firmspecific characteristics. In general the results presented in that table are in line with our *a priori* expectations. In particular, we find that firms with above median entrenchment level have a lower average asset turnover ratio relative to firms with below median entrenchment level. The difference between the two means is statistically significant at the 5 per cent level. Our results also indicate that firms with above median non-executive directors (board size) have asset turnover of 1.18 (1.17) whereas those with below median non-executive directors (board size) have asset turnover of 1.32 (1.32). These differences are also statistically significant at least at the 5 per cent level and consistent with our earlier argument that large boards and boards that are dominated by non-executive directors are not necessarily more efficient (in their asset utilization) than small boards and boards dominated by executive directors. As far as the rest of the variables are concerned, there is some evidence that the subgroups of firms with above median short-term debt, dividend and executive ownership have relatively higher asset turnover ratios.

[Insert Table 4 here]

In Table 5 we perform a similar task by comparing the average asset turnover ratios of the subgroups of firms categorized on the basis of their entrenchment levels and their values of executive ownership, market-to-book and option dummy. This is a preliminary attempt to check in more detail whether managerial entrenchment influences the asset turnover ratio of UK firms and, additionally, whether managerial incentives have any impact on the relationship between managerial entrenchment and asset turnover. To perform our task, we split the total sample of firms into two sub-samples, namely "low entrench firms" and

"high entrench firms" as follows: from the initial sample of 840 firms we drop the 10 per cent of firms whose entrenchment value lies between the 45th and the 55th percentile. Then, we label the lower 45 per cent as "low entrench firms" and the higher 45 per cent as "high entrench firms".

In line with our expectations, we observe notable differences in terms of asset turnover ratios between the two entrenchment groups. "High entrench firms" firms indicate a much lower value of asset turnover relative to "low entrench firms" (1.15 vs. 1.33). Such differences between the two groups are significantly less pronounced in the cases of subgroups of firms in columns (2), (3) and especially in (5), which includes the sub-sample of firms that simultaneously have above median values for executive ownership and market-to-book and pay options-bonuses. To some extent, this result supports the view that managerial incentives moderate the negative relationship between managerial entrenchment and asset turnover, indicating that managerial entrenchment is not a major issue in firms run by well motivated managers. In the last row of Table 5 we report some univariate mean-comparison test results. The reported t-statistic compares the mean differences in terms of asset turnover across different groups of firms In general, these results confirm statistically that the existence of an interaction effect between managerial incentives and entrenchment. For example, we find that the mean difference between the groups of "high entrench firms" and "low entrench firms" is not statistically significant in the subgroups of firms included in columns (2), (3) (5), which include firms that provide strong incentives to managers, but it is highly significant in the subgroup of firms included in column (6), which includes firms that do not provide any strong incentives to managers.

[Insert Table 5 here]

3.3 Regression Analysis

We examine the determinants of agency costs by employing a cross sectional regression approach. Following Rajan and Zingales (1995), the dependent variable is measured at some time t, while for the independent variables we use average-past values between t-1 and t-k. Using average values helps mitigate potential problems that may arise due to short-term fluctuations and extreme values in our data. Also, using past values reduces the problems related to reverse causality (e.g. the likelihood of observed relations reflecting the effects of asset turnover on firm specific factors). Accordingly, in our paper the dependent variable is measured in year 2003 whereas for the independent variables we use average values for the period 1999-2002.

As mentioned above, the dependent variable of our analysis is the asset turnover ratio, which is an inverse proxy of agency costs. We expect that asset turnover is inversely related to managerial entrenchment. However, as mentioned earlier, this relation itself is likely to vary with managerial incentives. To test for such a possibility, we interact the entrenchment proxy with the incentive variables, namely executive ownership, option dummy and market-to-book ratio. By doing so, we essentially test for the existence of both *main effects* (impact of managerial entrenchment and managerial incentives on asset turnover) and *conditional effects* (impact of managerial incentive). We expect the coefficients of the underlying interaction terms to be negative. More specifically, as executive ownership, growth opportunities and managerial option-bonus holdings increase, managers are expected to be less willing to exercise their ability to expropriate shareholders' wealth

because the interests between the two groups become more aligned (Jensen and Meckling, 1976; Jung et al., 1996; Zhou, 2001; and Fich and Shivdasani, 2005).

We also include total debt, short-term debt and dividends as additional independent variables in our modes. All these variables may work as effective (internal) corporate governance mechanisms or devices and, therefore, they are expected to be strongly associated with agency costs. For example, McConnell and Servaes (1995) and more recently Harvey et al. (2004) point out that leverage can act as an effective corporate governance device by reducing the managerial agency costs of free cash flow. Similarly, it is widely acknowledged that, in addition to total debt, the maturity structure of debt may influence agency costs. For example, short-term debt is usually considered as a more effective instrument than long-term debt in reducing the expected costs of the underinvestment problem.⁶ Finally, high dividend payout ensures that most of the cash flow returns to shareholders, leaving less liquid assets at the discretion of managers and, also, exposes managers to greater monitoring by existing and prospective financiers, such as investment banks, securities exchanges and other capital suppliers (Easterbrook, 1984).

In Table 6 we present the first set of our empirical results. We start with a baseline model where the dependent variable, asset turnover, is regressed against our proxy for managerial entrenchment, market-to-book ratio and size (Model 1). As expected, the coefficient of entrenchment is negative and statistically significant at the 5 per cent level. That is, the higher the level of managerial entrenchment in a company, the lower its asset turnover ratio. We also find that the coefficient of the market-to-book ratio is negative and

⁶ It is argued that firm with greater growth opportunities should have more short-term debt because shortening debt maturity would make it more likely that debt will mature before any opportunity to exercise the growth options (Myers, 1977). Consistent with this prediction, there are empirical studies that find a negative relation between maturity and growth opportunities (see, for example, Ozkan, 2000 among others). Also, an empirical study by Florackis (2005) finds that short-term debt is positively related with Tobin's Q.

significant indicating that as growth opportunities increase, on average, asset turnover decreases.⁷ Finally, the coefficient of our proxy for size is negative but insignificant.

[Insert Table 6 here]

In Model 2 we include total debt, short-term debt and dividend in our regression in order to test whether capital structure and dividend structure variables have any impact on agency costs. In addition, we include executive ownership and an option dummy variable to control for potential variation in agency costs due to changes in these variables. The results reveal that the coefficient of the entrenchment variable remains negative and statistically significant. On the contrary, the coefficients of short-term debt, dividend and executive ownership are positive and statistically significant at the 5 per cent, 1 per cent and 10 per cent levels respectively. These results are consistent with the findings of prior empirical research on the subject, which finds that managerial ownership, short term debt and dividends can potentially work as strong corporate governance devices for UK firms (Short and Keasey, 1998; Franks et al., 2001; Lasfer, 2002; Ozkan and Ozkan, 2004 and Florackis, 2005).

The next empirical question is to examine whether there are any specific factors that can provide managers with incentives, and the extent to which these incentives moderate the negative relationship between managerial entrenchment and asset turnover. To do so,

⁷ Growth opportunities are expected to have two conflicting effects on asset turnover. On the one hand, we expect a negative effect due to the high asymmetric information problems that characterize the high growth firms. That is, the higher the growth opportunities the higher the asymmetric information among firm stakeholders and, therefore, the higher the expected agency costs. On the other hand, we expect a positive effect due to lower free cash flow problems that high growth firms face. That is, the higher the growth opportunities the lower the free cash flow in the hands of managers and, therefore, the lower the expected agency costs. In our sample, it seems that the first effect dominates the second and that is why we find a negative relationship between growth opportunities and asset turnover.

we interact our entrenchment proxy with executive ownership, market-to-book and the option dummy. The results of this investigation are reported in the last three columns of Table 6, where we gradually include all the above mentioned interaction terms. Throughout these specifications the coefficients of most of the interaction terms are positive and statistically significant. Specifically, the coefficient of the term ENTRENCHMENT*EXECOWNER (ENTRENCHMENT*MKTBOOK) is 0.004 (0.023), significant at the 1 (10) per cent level, indicating that in firms with high levels of executive ownership (attractive growth opportunities) the negative association between managerial entrenchment and asset turnover is weaker. The coefficient of the term ENTRENCHMENT *OPTION_DUMMY is also positive but not statistically significant. These results suggest that one needs to distinguish between the effects of managerial entrenchment and incentives and take into account the interactions between them in determining agency costs.

In Table 7 we further investigate the role of other potential corporate governance mechanisms in determining the impact of managerial entrenchment on asset turnover by including additional interaction terms in our specifications. Specifically, we test if leverage, short-term debt and dividends also exert influence on the relationship between managerial entrenchment and agency costs. The main idea here is that the ability of a manager to expropriate wealth may depend on capital structure and dividend structure variables in addition to managerial incentives.⁸ It is likely that high levels of total debt and dividends payouts may lead managers to be more concerned about the overall prosperity of the firm and hence weaken the negative relationship between entrenchment and asset

⁸ In earlier models we treated capital structure and dividend structure variables as variables that affect agency costs only in a direct way. Here, we allow for the possibility that they also affect agency costs indirectly through managerial entrenchment.

turnover. The empirical findings do not support such an argument though. In model 7 we interact total debt, short-term debt and dividend with managerial entrenchment but we observe that none of the coefficients of the underlying interaction terms is statistically significant. We get a similar result when we incorporate all the potential relevant interaction terms in the model (Model 8) including the earlier managerial incentive variables . According to our results, from the whole set of interaction terms, only the terms ENTRENCHMENT* EXECOWNER and ENTRENCHMENT* MKTBOOK remain significant. This further supports our earlier findings. Also, the rest of the results do not change materially. We complete our investigation in this table by reporting a model with only the significant coefficients included (Model 9).

Overall, the results presented in Tables 6 and 7 constitute strong evidence that our composite proxy for managerial entrenchment is negatively related to asset turnover. More importantly, we find that managerial incentives, such as executive ownership and market-to-book ratio, influence the relationship between managerial entrenchment and agency costs. Finally, our results support the existence of other potential corporate governance devices in the UK such as short term debt and dividend payouts.

[Insert Table 7 here]

4. Robustness Checks

To help ensure the validity of our results, we conduct several tests of robustness in this section. First, we use a discrete rather a continuous variable for managerial entrenchment. We transform our continuous entrenchment proxy into a discrete one in the following way: we construct a new dichotomous variable which takes the value of one for firms with above median entrenchment level and 0 otherwise. Then, we re-estimate models 1 through 6. The results from such a task (not reported here) are qualitatively similar to the ones reported so far. Specifically, the coefficients of the interaction terms ENTRENCHMENT* MKTBOOK and ENTRENCHMENT* EXECOWNER remain positive and significant (both at the 10 per cent level), while the standalone coefficient of ENTRENCHMENT is negative and significant at the 5 per cent level. The results are also similar.

As a second robustness check, we use different sets of governance variables to construct our entrenchment proxy. We are doing so in order to check the sensitivity of the composite entrenchment variable (and its impact on agency costs) to the selection of different groups of governance variables. For example, as mentioned earlier, in addition to ownership structure and board structure variables, several variables related to the capital structure and dividend structure of firms may also determine, to some extent, managerial ability for expropriation. To test for such a hypothesis, we include the variables short-term debt and dividend directly as components of the entrenchment proxy.⁹ Once more, the results from such a test (not reported here) are very similar to the ones obtained so far. Specifically, the coefficient from the new entrenchment proxy is positive and significant at the 1 per cent level.¹⁰ Also, consistent with our earlier findings, when we include

⁹ Total debt is not included since it was found to be insignificant in all previous regressions. It seems that only the maturity structure of debt matters in determining managerial entrenchment.

¹⁰ Note that our new entrenchment proxy, given the signs of the overall factor loadings of each individual variable, is a decreasing function of managerial entrenchment. That is why we obtain a positive and not a negative coefficient of the variable entrenchment. The interpretation of that result, though, is exactly the same.

interaction terms in the model we find that as executive ownership and market-to-book increase the positive impact of the new composite proxy on asset turnover gets weaker.

Finally, we re-estimate our models using the ratio of selling, general and administrative expenses to total sales as an alternative proxy for agency costs. In contrast to asset turnover, the SG&A ratio is a direct proxy of agency costs. SG&A expenses include salaries, commissions charged by agents to facilitate transactions, travel expenses for executives, advertising and marketing costs, rents and other utilities (see, also, Singh and Davidson, 2004). Therefore, this ratio should reflect to a significant extent managerial discretion in spending company resources. For example, as Singh and Davidson (2004) point out, management may use advertising and selling expenses to camouflage expenditures on perquisites. Firms with high SG&A ratios are expected to experience high agency costs between managers and shareholders.

The results (not reported) indicate that managerial entrenchment remains strongly associated with agency costs. There is also evidence that executive ownership and dividends constitute effective corporate governance mechanisms or devices for the case of UK firms. However, the coefficient for short-term debt is not significant anymore. Furthermore, our results show that, from the set of variables used to control for managerial incentives, only executive ownership seems to affect the relationship between entrenchment and agency costs. The coefficients of the remaining interaction terms included in the models (i.e. ENTRENCHMENT* MKTBOOK and ENTRENCHMENT* OPTION_DUMMY) are insignificant.

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5. Conclusion

In this paper, we use a cross sectional regression framework for a sample of 840 UK listed firms to investigate the relationship between managerial entrenchment, defined as the extent to which managers are able to use their discretion and expropriate wealth from shareholders, and agency costs. Distinct from earlier studies, we estimate a flexible econometric specification that includes several interaction terms. By doing so, we examine both how managerial entrenchment affects agency costs (main effect) and how managerial incentives affect the relationship between managerial entrenchment and agency costs (conditional effect). Another methodological departure from previous studies is our choice to use principal component analysis in order to tackle the measurement issue of managerial entrenchment.

Our results show that managerial entrenchment is negatively associated with asset turnover. Most importantly, our results indicate that the negative impact of managerial entrenchment is alleviated when managerial incentives are controlled for. We find that in firms with high executive ownership and high market-to-book ratios, managers are less likely to use their ability to expropriate wealth, leading to a lower level of agency costs.

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Variable	Definition	Source
Dependent Variables ASSET TURNOVER	The ratio of annual sales to total assets	Datastream
SG&A	The ratio of selling, general and administrative expenses to total sales	Datastream
Independent Variables		
ENTRENCHMENT	A composite variable derived after using principal component analysis [§]	Our own Calculation
CONCENTR.	The sum of the stakes of firm's shareholders with equity ownership greater than 3 per cent (%)	Hemscott
NON-EXEC.	The ratio of the number of non-executive directors to the number of total directors on the board (%)	Hemscott
BOARD SIZE	The total number of directors on the board	Hemscott
TOTAL_DEBT	The ratio of total debt to total assets (%)	Datastream
SHORTDEBT	The ratio of short-term debt to total debt (%)	Datastream
DIVIDEND	The ratio of dividend payments to total assets (%)	
EXECOWNER	The percentage of equity ownership held by executive directors	Hemscott
МКТВООК	The ratio of book value of total assets minus the book value of equity plus the market value of equity to book value of assets.	Datastream
OPTION_DUMMY	A dummy variable, which takes the value of 1 if the firm pays options and/or bonuses to its executives and 0 otherwise	Hemscott
SIZE	Total assets (in logarithm)	Datastream

 Table 1

 Variables definitions and sources

Notes: This Table provides the definitions of the main variables used n our analysis as well as some information about our data sources. Datastream database provides accounting and market data. Hemscott Guru Academic database provides financial data for the UK's top 300,000 companies and detailed data on all directors of UK listed companies. [§] For more information about the ENTRENCHMENT variable see Section 4.1.

	Mean	Min	25%	Median	75%	Max
ASSET TURNOVER	1.25	0	0.63	1.09	1.68	7.22
CONCENTR.	34.44	0	19.32	36.63	47.24	95.19
NON-EXEC.	47.64	0	38.40	47.62	56.67	100
BOARDSIZE	7.03	3	5.33	6.66	8	18
TOTAL_DEBT	19.50	0	6.57	16.49	29.30	94.40
SHORTDEBT	49.91	0	25.73	47.90	72.41	100
DIVIDEND	2.27	0	0	1.61	3.07	38.83
SIZE	11.12	6.17	9.55	10.94	12.36	18.62
EXECOWNER	13.33	0	0.36	4.76	19.35	89.34
MKTBOOK	2.26	0.35	1.07	1.50	2.47	20.58
OPTION_DUMMY	0.567	0	0	1	1	1

Table 2Descriptive Statistics (N=840)

Notes: This Table provides descriptive statistics for the main variables used in our analysis. The means of the variables (except for asset turnover, which is measured in 2003) are measured over the period 1999–2002. Definitions for all the variables are provided in Table 1.

Table 3

Results from Common Factor Analysis

Panel A: Correlation Matrix					
	CONCENTR.	NON-EXEC.	BOARDSIZE		
CONCENTR.	1				
NON-EXEC.	0.10	1			
BOARDSIZE	-0.12	0.18	1		
Panel B : Eigenvalues	s of the reduced c	orrelation matrix			
1	2	3			
1.182	1.084	0.734			
Panel C: Index Weight	t				
	CONCENTR.	NON-EXEC.	BOARDSIZE		
	-0.141	0.657	0.741		
Panel D: Descriptive statistics for the first factor extracted (called ENTRENCHMENT)					
Mean	Min	Median	Max		
0.001	-3.444	-0.095	5.027		

Notes: This Table provides the results of the common factor analysis, which has been used in order to create our proxy for managerial entrenchment. Definitions for the variables NON-EXEC, BOARDSIZE and CONCENTR are provided in Table 1.

Table 4

Mean comparison of Asset Turnover (sales to assets)- analyzing high (above median) versus low (below median) ownership structure, board structure, compensation structure and other firm characteristics

	Asset turnover mean of above	Asset turnover mean of below	Mean Difference
	variable	variable	(t statistic)
	variable	variable	(I-statistic)
	median	median	
ENTRENCHMENT	1.17	1.32	-2.53**
CONCENTR.	1.26	1.24	0.26
NON-EXEC.	1.18	1.32	-2.31**
BOARDSIZE	1.17	1.32	-2.55**
TOTAL_DEBT	1.17	1.33	-2.63***
SHORTDEBT	1.38	1.12	4.42***
DIVIDEND	1.40	1.10	5.11***
SIZE	1.22	1.28	-0.98
EXECOWNER	1.34	1.16	3.09***
MKTBOOK	1.25	1.24	0.21
OPTION_DUMMY	1.25	1.24	0.12

Notes: This Table provides univariate mean comparisons of asset turnover for above median and below median values of several firm-specific characteristics. Definitions for all the variables are provided in Table 1. *** and ** indicate that the mean difference is statistical significance at the at the 1% and 5% level respectively.

Table 5

Mean comparison Asset Turnover (sales to assets) for different groups of firms						
	(1) Turnover of All	(2) Turnover of group with above median Executive Ownership	(3) Turnover of group with above median Market To Book	(4) Turnover of group that pay Options & Bonuses	(5) Turnover of group 5	(6) Turnover of group 6
High Entrench (A)	1.15	1.25	1.21	1.15	1.40	0.93
Low Entrench (B)	1.33	1.37	1.34	1.36	1.40	1.27
All Firms	1.25	1.34	1.26	1.25	1.42	1.12
t-test (A) vs. (B)	-2.89***	-1.22	-1.25	-2.53**	-0.03	-2.28**

Notes: This Table provides univariate mean comparisons of asset turnover for different groups of firms. Firms are split into two sub-samples, namely "low entrench". and "high entrench" as follows: from the initial sample of 840 firms we drop the 10 per cent of firms whose entrenchment value lies between the 45th and the 55th percentile. Then, we label the lower 45 per cent as "low entrench firms" and the higher 45 per cent as "high entrench firms". Group (5) includes firms with high (above median) levels of executive ownership, market-to-book and option dummy. Group (6) includes firms with low (below median) levels of executive ownership, market-to-book and option dummy. *** and ** indicate that the mean difference is statistical significance at the at the 1% and 5% level respectively.

Table 6

Cross sectional regressions of agency costs on managerial entrenchment and other firm characteristics

Dependent Variable: Ratio of Annual Sales to Total Assets (inverse proxy for agency costs)					
Independent variables	<u>Model 1</u>	<u>Model 2</u>	<u>Model 4</u>	<u>Model 5</u>	<u>Model 6</u>
Constant	1.51 (6.60)***	1.134 (4.41)***	1.037 (4.02)***	1.050 (4.08)***	1.064 (4.12)***
ENTRENCHMENT	-0.075 (-2.25)**	-0.058 (-1.74)*	-0.102 (-2.78)***	-0.153 (-3.54)***	-0.178 (-3.49)***
TOTAL_DEBT	-	-0.003 (-1.33)	-0.003 (-1.36)	-0.003 (-1.36)	-0.003 (-1.38)
SHORT_DEBT	-	0.003 (2.36)**	0.003 (2.43)**	0.003 (2.49)**	0.003 (2.46)**
DIVIDEND	-	0.044 (2.79)***	0.044 (2.80)***	0.043 (2.73)***	0.043 (2.75)***
SIZE	-0.018 (-0.94)	-0.005 (-0.27)	0.003 (0.16)	0.002 (0.08)	-0.001 (-0.01)
EXECOWNER	-	0.004 (1.85)*	0.006 (2.40)**	0.006 (2.46)**	0.006 (2.45)**
МКТВООК	-0.029 (-2.36)**	-0.035 (-2.91)***	-0.035 (-2.86)***	-0.033 (-2.70)***	-0.034 (-2.75)***
OPTION_DUMMY	-	0.041 (0.67)	0.036 (0.60)	0.036 (0.60)	0.042 (0.70)
ENTRENCHMENT* EXECOWNER	-	-	0.003 (2.72)***	0.003 (2.96)***	0.004 (2.90)***
ENTRENCHMENT* MKTBOOK	-	-	-	0.023 (1.78)*	0.023 (1.75)*
ENTRENCHMENT* OPTION_DUMMY	-	-	-	-	0.042 (0.87)
Industry Dummies	Yes	Yes	Yes 0.167	Yes 0.170	Yes
N Number of firms	840	840	840	840	840

Notes: This Table presents cross-sectional regressions predicting agency costs, using the Asset Turnover ratio as an inverse proxy of agency costs. All the independent variables are defined in Table 1. All regressions include industry dummies. t-statistic values are reported in parentheses.. For the estimation we use consistent to heteroscedasticity standard errors. ***, ** and * indicate coefficient is significant at the 1%, 5% and 10% level respectively.

Table 7

Cross sectional regressions of agency costs on managerial entrenchment and other firm characteristics

Dependent Variable: Ratio of Annual Sales to Total Assets (inverse proxy for agency costs)					
Independent variables	<u>Model 7</u>	<u>Model 8</u>	<u>Model 9</u>		
Constant	1.159 (4.44)**	1.104 (4.26)***	1.001 (14.41)***		
ENTRENCHMENT	-0.033 (-0.44)	-0.137 (-1.73)*	-0.152 (-4.27)***		
TOTAL_DEBT	-0.003 (-1.34)	0.003 (-1.43)	-		
SHORT_DEBT	0.003 (2.28)**	0.003 (2.33)**	0.003 (3.28)***		
DIVIDEND	0.044 (2.79)***	0.043 (2.76)***	0.044 (2.88)***		
SIZE	0.008 (-0.37)	-0.003 (-0.16)	-		
EXECOWNER	0.004 (1.74)*	0.006 (2.34)**	0.006 (2.47)**		
МКТВООК	-0.036 (-2.97)***	-0.034 (-2.82)**	-0.033 (-2.70)***		
OPTION_DUMMY	0.041 (0.66)	0.043 (0.70)	-		
ENTRENCHMENT*SHORT_DEBT	-0.0006 (-0.64)	-0.001 (-1.19)	-		
ENTRENCHMENT*TOTAL_DEBT	0.0005 (0.29)	0.0006 (0.41)	-		
ENTRENCHMENT*DIVIDEND	-0.003 (-0.27)	-0.004 (-0.30)	-		
ENTRENCHMENT*EXECOWNER	-	0.004 (2.74)***	0.004 (2.99)***		
ENTRENCHMENT*MKTBOOK	-	0.025 (1.92)*	0.023 (1.86)*		
ENTRENCHMENT*OPTION_DUMMY	-	0.038 (0.76)	-		
Industry Dummies R ²	Yes 0.162	Yes 0.173	Yes 0.167		
Number of firms	840	840	840		

Notes: This Table presents cross-sectional regressions predicting agency costs, using the Asset Turnover ratio as an inverse proxy of agency costs. All the independent variables are defined in Table 1. All regressions include industry dummies. t-statistic values are reported in parentheses.. For the estimation we use consistent to heteroscedasticity standard errors. ***, ** and * indicate coefficient is significant at the 1%, 5% and 10% level respectively.