Remuneration dispersion and firm performance:

The case of British boards

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Abstract

Traditionally the corporate governance of the US and of the UK is put together in a box labelled "Anglo-Saxon", to be contrasted with other corporate governance systems, such as those of continental Europe and Japan. However, in spite of numerous similarities, there are also substantial differences between the US and UK corporate governance systems and mechanisms. While US boards are 'one man shows' of the CEO, who typically combines the power of the CEO and the chairman of a board, UK boards seem less hierarchical. Here, for example, it is a standard that the CEO and the chairman of a board are different people. It is well documented that in the US higher remuneration dispersion among executive board members is positively associated with firm performance.

This paper addresses the question whether a similar relationship characterises British boards. Given differences in organisation and structures between UK and US boards we hypothesise that such a positive relationship may not exist. Indeed, using a sample of 640 firms over the period 2000-2008 we find strong evidence that the relationship is negative, i.e., the higher remuneration dispersion of an executive board, the lower firm performance (measured by return on capital employed and shareholder return). Furthermore, this appears to be a feature of the UK relative to the US, since it is shown that the negative relationship between the remuneration dispersion and firm performance becomes positive when American nationals are executives.

JEL classification: G35, J33, L29
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Introduction

Corporate governance has been a growing focus of attention for regulators, the business community, policymakers and academics for many years, and this is showing no sign of abating. In the UK, as in many countries, a debate is taking place as to whether to regulate the remuneration of CEOs, and if so how this should be implemented. This has rapidly become the focus of fervent political debate.[2] Although divided in details, the Labour Party and the ruling coalition of the Conservatives and the Liberal Democrats have expressed their concerns about the high levels and growth rates of CEO remuneration. In 2011 "the median pay of FTSE 100 chief executives rose by 14 per cent, while the figure for the wage-earning population as a whole rose by only a tenth of that" (Dominic Lawson, Let the public punish fat cats if they really care, The Independent, 10 January 2012). The debate focuses on the scale of the CEO remuneration and its potential mismatch with performance, and puts the 'blame' almost entirely on the shoulders of 'greedy' CEOs who are characterised as not performing in spite of generous remuneration packages. This however, is likely to be far from the whole story. High remuneration of CEOs may actually act against them. Even if it gives the CEO an incentive to perform, it may not do so to the other board members and so the net effect may be negative and weaken the performance of the company. If board members feel that their efforts are not properly and justly rewarded and feel it is only CEOs who 'scoop the cream' of success, then the relationship between 'fat cats' and corporate performance may be more complex. So there is a good case to suggest that the forthcoming remuneration reforms should be seen as the reform of board remuneration, rather than just CEO's.

The focus on CEO remuneration and performance, rather than board remuneration structure and performance, is also present in the academic literature. Disproportionately more papers have been written about how CEOs are and should be remunerated, and the associated question as to whether their compensation is 'pay without performance', compared to those dealing with board remuneration. The alignment of CEOs incentives with shareholders' interests, via the granting of shares and options, is predominantly promoted as the solution (stemming directly from agency theory). However, there are real world externalities that imply less straightforward solutions and suggest that the CEO remuneration-performance relationship is more complex. The incentives of boards are also

[2] E.g., see "Labour urges 'responsible capitalism' in executive pay", David Batty, The Guardian, 7 January 2012; "We'll rein in executive pay, vows David Cameron", Tom Ross, The Telegraph, 7 January 2012; "Ed Miliband has been pick-pocketed by David Cameron on executive pay. Has he noticed yet?" Dan Hodges, The Telegraph, 9 January 2012.

multifaceted. The structural complexity of remuneration of individual board members (Carpenter and Sanders, 2002) is additionally complicated by behavioural issues. Cooperation or individualism? Mateship or rivalry? Just as the theory is divided (Lazear and Rosen, 1981 versus Milgrom and Roberts, 1988, Lazear, 1989), so is the empirical evidence. While the vast majority of studies conclude that both inequality of pay between a CEO and executive board members, and dispersion of remuneration within an executive board, are positively associated with performance (Lee et al. 2007), there are studies which are less supportive of this positive relationship.

Ang et al. (1998) argue that the lack of support for a positive relationship may result from family ownership. The nature of the contest to the top and role of financial incentives may be different in boards dominated by members of the owning family than in dispersed ownership firms. Eriksson (1999) explains the lack of support by an insufficient 'accounting of differences in organizational structure of the firms' in his Danish sample. Using UK data Conyon and Sadler (2001) have only a "varying degree of success" in establishing the positive relationship between the remuneration gap and firm performance, while Conyon et al. (2001) conclude that "…wage dispersion does not have a robust positive effect on corporate performance". They also argue that the differences between corporate governance arrangements in the US and in the UK are big enough to assume that "previously established empirical tournament findings (for the US) may not be universally valid (in the UK)".

Taking this point further, although the belief that the US studies have a universal character has been successfully challenged (Clarke, 2000; Whittington & Mayer 2000, Pettigrew, 2001), it is not always appreciated that differences are observed between the US and the UK when it comes to basic mechanisms of corporate governance. It is more common to contrast the US against Japan and Germany than the UK (Aguilera and Jackson, 2003). Indeed, the common perception that the US and the UK construct the core of the Anglo-Saxon corporate governance model indicates that when talking about corporate governance systems more attention is put towards finding similarities than disparities (Conyon, et al., 2011, Gerakos et al., 2009). Yet, there are strong voices in support of differences that have not been addressed properly in the past and hence may lead to misconceptions and incorrect generalisations.

Differences in the industrial history and organisations of the UK and the US (Toms and Wright, 2005), managerial styles (Black and Coffee, 1994; Holland, 1998) and structures and mechanisms of governance (Aguilera, 2005; Aguilera et al., 2006,

Williams and Conley, 2005) alone can be responsible for the fact that US findings may not stand true for British firms. In addition, more fundamental differences in the culture of the two nations may play a vital part in explaining why the rivalry within American boards might not deliver the same positive results when applied to a wide spectrum of British boards. For instance, Geert Hofstede™ Cultural Dimensions show that the Power Distance Index, that is the extent to which the less powerful members of organizations and institutions accept and expect that power is distributed unequally, puts the UK on the same level as Germany, with the value of the index at 35, while the US scores 40.

The purpose of this paper is twofold: (i) it addresses the relationship between board pay dispersion and firm performance for British firms, and (ii) it investigates whether this relationship is affected if firms have American links. In contrast with the previous studies the research is based on a wide range of British companies, since it is believed that they provide a better understanding about UK characteristics than can be achieved by focusing solely on the biggest companies, i.e., FTSE100 (e.g., Conyon et al., 2001. The American influence is proxied by the presence of American nationals as executive directors (CEO included), by having sales in the US, and by being listed on the US stock exchanges.

Prior Literature and Hypotheses (to be further developed)

As Jensen (1993) notes, "… bad systems or rules, not bad people, underlie the general failings of the board of directors." This suggests that enhancing the quality of governance mechanisms is more likely to ensure that managers do not deviate from their fiduciary duties.

Executive compensation is one of the most studied topics in the corporate governance literature. The level, structure and rate of growth of compensation are analysed from the perspective of their consequences as well as causal factors (see Bebchuk and Weisbach, 2010 for a comprehensive survey). The relationship between executive compensation and firm performance is perceived as a mechanism to reduce agency problems (e.g., Holmstrom, 1979) or the result of agency problems (Bebchuk and Fried, 2003, 2004). Most of this literature is US based. This is justified by the data availability, scale of the American economy and potential scale of agency problems.

The literature on executive boards has a slightly different dimension. The board of directors are not only to support a CEO in running a company but also to directly monitor him/her on behalf of shareholders. Therefore, the agency problem studied at the CEO-shareholders level expands to the directors-shareholders level. As the issue of how to structure incentives for and effectively monitor a CEO shows a great complexity, the issue of structuring, motivating and, finally, monitoring boards of directors are far from straightforward. Indeed, as it is hard to identify a solution for a (one) CEO, finding a solution for multi-personal boards seems even harder.

The structural separation of directors into executives and non-executives is widely practiced and research shows that it is associated with good corporate governance practices (Beasley et al., 2000; Weisbach, 1988; Chhaochharia and Grinstein, 2008), although it does not solve all the monitoring problems (?Bebchuk et al., 2009, Franks et al., 2001) However, as the executive directors are subject to similar agency problems as CEOs, the question of how to motivate them to work in the best interest of shareholders remains open. Carpenter and Sanders (2002) show that alignment of executive directors' remuneration with shareholders' interests (i.e., equity linked incentives) is positively associated with firm performance. Moreover, they show that an 'internal alignment', i.e., similarity of managerial total pay to the total pay of a CEO, is also positively associated with firm performance. This result supports Hambrick's (1995) argument that a lack of co-operation among managers can arise when their remuneration is based on performance of units they are responsible for, but this contrasts with a large literature which finds that differences in remuneration between CEO and the executive board members are a strong stimulus for performance. Numerous papers find evidence of 'tournaments' and their effectiveness in improving firm performance. It is worth noting that most of the literature on tournaments in executive boards is based on US data. It is commonly found that the bigger the remuneration gap between a CEO and his/hers vice-presidents, the three or five best paid executives, etc., then the better the firm performance (e.g, Main, O'Reilly and Wade (1993), Bognanno (2001), Henderson and Fredrickson (2001), DeVaro (2006a, 2006b), Kale et al. (2009), Rankin and Sayre (2011)). Lee, Lev and Yeo (2007) approach the issue from a different angle. They do not look at the award of becoming a CEO as the motivation for executive board members, but at the dispersion of compensation within an executive board. Consistent with the other US studies, in spite of methodological differences, they also find that the higher remuneration inequality, the better firm performance.

The positive relationship between pay differences within an executive board and firm performance finds only a weak support in non-US studies. Although the lack of the relationship may result from a lack of tournaments (Ang et al., 1998), it does not seem to be effective even when there is some evidence of tournament incentives being used by firms (Eriksson, 1999; Conyon and Sadler, 2001; Conyon et al. 2001).

Differences in corporate structures, national characteristics, etc. may be detrimental for how mangers respond to a competitive environment. Geert Hofstede™ Cultural Dimensions show substantial variations between nations in their sensitivity to social inequality, individualism, distribution of roles between the genders, and tolerance for uncertainty and ambiguity.

Cultural differences are associated with different attitudes towards authority, rivalry and awards (e.g., Tosi and Greckhamer, 2004). Cultural differences are also associated with a formation of different organisational structures, and governance (Pettigrew???). If, based on the prior literature, we take the US as a reference point then we can expect that a lack of positive relationship between remuneration gap and firm performance may occur in countries with governance structures different from those of the US. Consequently, it may come as a bit of surprise that the UK studies based on biggest firms which most likely have a considerable exposure to the US market and culture deliver results so different from those obtained for the US firms.

There are several arguments why the US and the UK based studies could be expected to deliver similar results. For instance, the US' and the UK's organisations of the financial sector and its role in financing economic activities are more alike than systems existing in other countries (the continental EU countries, Japan, etc.). The wide separation of ownership and control and the strong preference for unitary boards make the two countries stand together against a wide international comparison. However, a careful look reveals that these similarities are rather superficial, and that there are fundamental differences between the US and the UK which require recognition.

Toms and Wright (2005) provide in depth analysis of the changing characteristics of corporate governance in the UK and its comparison with the US after WWII. The authors point out substantial differences in industrial organisation and managerial styles of the two countries which not only makes the UK look very different from the US, but also shows that the US solutions may not be appropriate for the UK. For instance, they argue that copying US strategies was not the right way forward for big British companies and was "…even less suited to Britain's sizable small firm sector". They also argue that

British managers "were reluctant to adopt professional managerial hierarchies" so characteristic for American boards. British quiet diplomacy, effectiveness and tradition for succession contrasts with the 'one man show' style of US CEOs (see, Black and Coffee, 1994; Holland, 1998). There also are fundamental differences in how boards are structured. Concentration of power is greater on US boards than on UK's. In the US CEOs are typically chairs of their boards. Kale Reis and Vankateswaran (2009) argue that if "… the CEO does not also hold the position of chair, this often indicates that the CEO is under some sort of probation". This is quite opposite to the British case. Higgs (2003) documents that while only in 19% of US corporations CEO is not a chair, CEO is not a chair in 90% of UK companies. Indeed, one of the main recommendations of the Cadbury Report (1992) was a clear division of responsibilities on British boards, i.e., that the position of chairman of the board is separated from that of CEO, or that there will be a strong independent element on the board.[3] This CEO-chair dichotomy is essential, since boards hire and fire CEOs in the UK. Warnig (2007) argues that "(t)he fact that UK shareholders have the authority to appoint or remove a director encourages an environment where the use of such power is rarely needed (…) the UK regulatory environment supports shareholder collegiality by permitting dialog between boards and investors". Even, such a supposedly trivial thing as how a CEO is referred to is different in the two countries.[4] The US terminology of CEO (Chief Executive Officer) has an element of power and military order, however the traditional UK nomenclature of Managing Director indicates less dominant and power based position.

It is well documented that fairness is an important component of organisation, and team work, in particular. Although acceptance of CEO compensation may be different across cultures (Tosi and Greckhamer, 2004), it is used by employees as a 'reference point' to assess whether their compensation has been fair or not (Wade, O'Reilly and Pollock, 2006). In particular, Wade et al. (2006) show that underpayment in relation to a CEO is associated with a higher turnover at a lower-managerial level.

Differences between UK and US

[3] Jensen, Murphy and Wruck (2004) also argue that "…the board should be chaired by a person who is not the CEO, was not the CEO, and will not be the CEO".

[4] This of course might be just a purely lingual risparity. As Oscar Wild has explained "(w)e have really everything in common with America nowadays except, of course, language." (Oscar Wild, *The Canterville Ghost*)

- Dispersion does not work on British boards

Are the differences within a board national decomposition? Nationality of board members matters:

Are there differences between pure UK and mixed nationality UK boards?

- There might be, but the most pronounced ones should be in the US.

Hypotheses (to be further developed)

As discussed above there are numerous studies which document that in the US the pay dispersion between a CEO and executive board members is positively associated with firm performance. The majority of this research focuses on a comparison of a CEO with his/her team as potential rivals for the CEO position. The UK studies try to follow this approach. Conyon et al. (2001), and Conyon and Sadler (2001) studying the tournament hypothesis on a small sample of UK companies focus their attention on divisional directors who proxy for American vice-presidents. However, this approach has a strong limitation, i.e., only a small number of companies can be analysed, as it is only the biggest companies that have divisional directors. As the British scene is dominated by small and medium size enterprises (Toms and Wright, 2005) studies focused on the biggest companies may not necessarily well and fully reflect the British characteristics. Therefore, as numerous studies stress a lack of CEO-leader attitudes of the British boards, it can be expected that high remuneration disparity between a CEO and board members may not necessarily result in better firm performance.

Our sample includes a broad range of UK companies, therefore our approach to who CEO's remuneration should be compared with should allow for UK specifics. Due to a lack of vice-presidents on British boards and the fact that only about 10% of companies in our sample have divisional directors, we compare CEO's remuneration to

Hypothesis 1: Firm performance is negatively associated with dispersion.

Moreover,

Hypothesis 2: The dispersion of salary has a higher negative impact on firm performance than the dispersion of total pay.

And

Hypothesis 3: The negative relationship between remuneration dispersion and firm performance is stronger in a sample of companies with British nationality executives only.

Although there are studies of UK CEO characteristics (xxx), and pay gap between a CEO and VPs (Conyon…), the issue of the impact of remuneration dispersion on performance has not been addressed. Moreover, although there are signs that the British corporate world becomes progressively Americanised (XXXX), it is not clear that adoption of American solutions is appropriate for British companies. There are strong arguments to suspect that in spite of both countries being commonly perceived as the fundament of the Anglo-Saxon financial system, differences in corporate structures, organisation and culture are such that what works in America may not work in Britain.

Argument why we do it the way we do it

Newman and Nollen (1996) conclude that "…financial performance is higher when management practices in the work unit are congruent with national culture". The literature shows that in the US dispersion positively covaries with firm performance. Therefore, we test whether having American board members and/or American CEOs affects the remuneration dispersion-firm performance relationship.

Hypothesis 4: The presence of American executive board members increases the impact of dispersion on firm performance.

Hypothesis 5: The dispersion-firm performance relationship is not driven by firms' business contacts with the US.

Methodology

Data Sources

The data have been collected from numerous sources. The information about characteristics of individual members of boards such as nationality, tenure, age, current position on the board and number of non-executive positions outside the board, as well as annual remuneration of executive board members have been collected from BoardEx. However, since Boardex's data have numerous missing observations other

complementary sources of information were consulted to fill in gaps where possible. For instance, nationality of board members provided by BoardEx is very incomplete, therefore, when the nationality of individual executive board members was missing, these individuals were cross-searched on www.semantric.com, www.linkedin.com and Bloomberg Businessweek (http//investing.businessweek.com). In addition, annual company reports were consulted whenever more detailed information about board structure was required.

From Datastream/Worldscope we collected accounting and stock market data necessary to calculate performance measures and control for firm characteristics. Thomson One Banker was the source of information on institutional and insider share ownership. Information on cross-listing in the US was collected from annual reports of the US stock exchanges, BNY Mellon (www.adrbnymellon.com) and via a general web search. Information on whether companies had business relations with the US was collected from www.hemscott.com.

The sample consists all 936 non-financial UK companies publicly traded on the London Stock Exchange over the period 2000-2008 for which (i) information about at least two years is available, (ii) information about at least three executive board members is available, (iii) a company had a CEO (i.e., it was not in process of appointing a new leader). However, due to the unbalanced character of the data only 640 companies are used in the regression analysis.

Dependent variables

A CEO and board are contractually bound to act on behalf of shareholders, and therefore to maximise the shareholder value. Therefore, using returns on shares to measure company performance is common in the literature and we also adopt this route. In addition, we also look at the return on capital employed (*ROCE*). Financial ratios are commonly used in the literature as they "act as a potential signal of managerial effort" (Conyon, 2000), and we choose ROCE because of a comparison with the earlier UK studies Conyon and Sadler (2001) and because ROCE is the measure used in the UK by the Competition Commission to assess firm performance.[5]

Using ROCE is straightforward, because the timing of its reporting is consistent with the timing of the other corporate governance and remuneration data. However, because

[5] The other commonly used financial ratios are return of equity (ROE) and return on assets (ROA). They are correlated with ROCE at 86% and 87% respectively.

months of publication of the reports differ across companies, i.e., some companies publish their reports in January, some in February, some in March, etc., the corresponding stock market performance must be calculated to match the period covered by the financial performance and corporate governance data. We calculate the stock market performance, *Returns*, as the annual log-return of dividend adjusted share prices for a year ending a month before the annual report is published, i.e., if an annual report is published in March 2007, a corresponding stock market performance is calculated between March 2006 and February 2007. We believe that in this way we closely match the period the accounting data are calculated for (preparation of the final report takes some time).

Independent variables

The dispersion measure is calculated as the standard deviation of remuneration of the executive directors (CEO included) normalised by the mean remuneration (e.g., Lee et al., 2008). It measures inequality of remuneration within the board and therefore can be expected to be correlated with 'team spirit' of a board (e.g., Lawler, 1989; Ledford, 1993; Scott and Tiessen, 1999). Dispersion is calculated for salary (*Dispersion-salary*), and the total compensation (*Dispersion-total pay*). Hypothesis 1 predicts that both measures of dispersion are negatively related to performance, and Hypothesis 2 implies that the coefficients estimated for Dispersion-salary is larger (in absolute terms) than the coefficients estimated for Dispersion-total pay.

To test Hypotheses 4 and 5, i.e., to test for the impact of the presence of non-British executives on the firm performance – remuneration dispersion relationship we construct the following four variables which will be interacted with both measures of dispersion:

US board% is the ratio of the number of American nationality executives other than a CEO to the total number of executives minus a CEO. *Non-US board%* is the ratio of the number of overseas non-American nationality executives over than CEO to the total number of executives minus a CEO. *US CEO* is a dummy equal to one if a CEO is an American citizen and zero otherwise, and, finally, *non-US CEO* is a dummy equal to one if a CEO is neither British nor American and zero otherwise.

All these variables are interacted with Dispersion-salary and Dispersion-total pay creating further eight variables.

In addition to test for Hypothesis 6, i.e., to test whether the firm performance – pay dispersion relationship can be explained by firm's exposure to the American market we construct two more variables: *US listed* and *US sales*. US listed is a dummy which is equal to one if a company was cross-listed on one of the US stock exchanges in a given reporting year, and *US sales* is a dummy equal to one if a company had sales in the USA and zero otherwise. The information about sales was collected from www.hemscott.com. Unfortunately, the format of provided data is not uniform across companies, therefore it was not possible to construct a variable which would measure the relative size of US sales to all the sales or even overseas sales.

These two dummies are also interacted with the dispersion measures.

Control variables

Because we are interested in isolating the impact of Dispersion on firm performance from other firm characteristics we control for several firm and board characteristics which are well documented to be associated with performance. Following the previous literature several firm and corporate characteristics are controlled for.

Firm characteristics

Following the corporate governance literature we control for firm *Size*, which is measured by the natural logarithm of net revenues (sales) expressed in millions of pounds sterling. *Leverage*, defined as a ratio of total debt to total assets, controls for a firm's financial liquidity. High leverage is typically perceived as a sign of financial distress so a negative relationship between performance and leverage is expected. In addition, we control for insider ownership, *Insiders*, defined as a fraction of outstanding shares held by insiders such as directors, officers, immediate families, any other corporate individuals. As agency problems arise from the separation management and control, the higher the shareownership of the executives is the higher their alignment with shareholders is, therefore a positive sign on this variable should be expected.

Board and CEO characteristics

We also control for several board and CEO characteristics commonly controlled for in the literature and found to be significantly related to performance. The size of a board, *Board size*, is defined as the total number of executive (including CEO) and non-executive directors sitting on a board. The relationship between the board size and the

performance is not clear, although it can be expected to be negative rather than positive. This is because, although, on one hand, bigger boards having more man-power and expertise may be able to draw on a variety of perspectives on corporate strategy (Forbes and Milliken, 1999; Goodstein et al., 1994), on the other hand, they may suffer from potential group dynamics problems associated with large groups. They may be more difficult to coordinate and may experience problems with communication and organisation resulting in low cohesion (Judgeand Zeithaml, 1992; Goodstein et al., 1994; Eisenberg et al., 1998; Forbes and Milliken, 1999; Golden and Zajac, 2001).

Board independence, *NED%*, is the ratio of the number of independent (non-executive) directors to the number of executive and non-executive directors sitting on a board. Although, the general expectation is that the independent directors are an important part of an effective corporate board (Fama (1980) and Fama and Jensen (1983), Cadbury Report, 1995), the evidence that they are sufficient to positively impact on board practices is mixed. For instance, Franks et al. (2001) shows that in the UK companies independent directors do not seem as effective as they are shown to be in research based on US samples (e.g., Lee et al., 2008). This may be due to the fact that not all independent directors are in fact independent (Mace 1986; Patton and Baker 1987; Hermalin and Weisbach 1988, 1991; Lee et al. 1992; Shivdasani 1993; Vicknair et al. 1993).

CEO tenure is defined as the natural logarithm of the number of years and months a CEO has been in a current post plus one (e.g., if a CEO has been in post for two and half years, his/her tenure is calculated as ln(3.5)). It can be expected that good managers stay longer in their post, therefore a positive relationship between tenure and performance is expected. In addition, we define a variable *CEO on boards* equal to the number of boards of listed companies (outside his/her own company) a CEO sits on in a given reporting year. If reputation in business circles is correlated with the number of boards a CEO sits on, *CEO boards* can be expected to be positively related to performance. However, if being busy outside his/her own firm destructs CEO in his/her duties, it can be expected that it may impact negatively on his/her own firm performance. This would be consistent with XXX finding that busy boards are not good at monitoring.

Finally, we define a dummy *CEO is Chair* equal to one if a CEO is also a Chairman of the board and zero otherwise. Because the separation of the positions of board chairman and of CEO are recommended for British boards as a sign of good corporate governance practice (Cadbury Report, 1995), being a chair and CEO at the same time

may be perceived as an excessive concentration of power and expected to be associated with bad firm performance.

In addition to the above defined variables we use time and industry dummies. Time dummies are based on calendar years. The industry dummies are defined using BoardEx industry specification. There are 34 industries in the sample.

Data Analysis

We use an unbalanced panel data design of maximum 640 firms across 9 years. As the result of missing observations the number of firms differs slightly across regressions (between 625 and 640). Due to the nature of the data, i.e., the lack of independence across variables (e.g., a size of a board does not change randomly over time), differences across companies and similarities within groups of companies (e.g., within sectors) a panel regression estimation technique which corrects standard errors for autocorrelation, heteroscedasticity and contemporaneous cross-sectional correlation is needed. To deal with these issues we adopt the panel-corrected standard errors estimation method (PCSE) developed by Beck and Katz (1995). The PCSE is shows (Hoechle, 2007) to produce more robust standard errors than commonly used a feasible generalised least-squares (FGLS) method proposed by Parks (1967).

The analysis is performed on the whole sample, however, as a crosscheck and partly for the interest in its own right we test Hypotheses 1 and 5 on a sample of companies were all board members are British.

There is one more issue which needs clarification – a potential endogeneity between performance and dispersion. There is a possibility that even if remuneration dispersion impacts on firm performance, the performance itself may result in changes in the award structure. For instance, if a particular executive's efforts have resulted in a superior firm performance, he/she may be awarded extra compensation. However, without knowing what remuneration policy is in place, we cannot tell whether superior firm performance affects CEO compensation only, and therefore increases the dispersion within the board, or whether the whole board gets awarded, what results in no change in the remuneration dispersion within the board (although the level of remuneration increases). Although it is very unlikely that all companies award CEOs disproportionately more than other board members for good performance, it may be the case in same of the companies in our sample. Since we cannot completely rule out the

endogeneity between dispersion and performance, we take a cautious route and lag the dispersion. Therefore, in all the regressions Dispersion refers to its first lag.

Results

Correlations, means and standard deviations are shown in Table 1. Table 2 shows results of the regressions using the whole sample, Table 3 shows the results for US boards and US CEOs when controlling for firms being US listed and having sales in the US. Table 4 shows results using only these companies which have boards consisting of British nationals only. The format of presentation of the results in Tables 2 is as follows. The first column shows the names of the variables for which the estimates of the coefficients are presented. Columns 2 - 5 show the results obtained for Dispersion-salary and columns 6 – 9 show the results for Dispersion – total pay. For each set of the result the estimates using ROCE as the dependent variable and then shareholder returns as the dependent variable are presented. First, the basic regression (without any interactive effects, Hypothesis 1) is shown (to save space we do not present year and sector fixed effects). The next two sets of regressions show estimates when the proportion of American and overseas non-American executives other than CEO is controlled for, and when American CEOs and overseas non-American CEOs are controlled for (Hypothesis 4). Each set of regressions is supplemented with the Wald chi2 and R-squared statistics, and the number of observations.

In Table 3 shows results with two additional controls: US listed and US sales (Hypothesis 5). First, the results when the percentage on American executives is controlled for US board% (columns 2-8), and then when it is controlled whether a CEO is of American nationality (columns 9-16). Finally, Table 4 shows the results for the sample of companies with British boards only. First, the basic (with no interactions) results are presented (Hypothesis 1), and then when the exposure to the US market is controlled for (Hypothesis 5).

The estimates of the controls sho that consistently with our expectations Leverage is associated with bad firm performance and the length of a CEO's tenure is positively associated with it. The negative sign of the coefficients estimated for CEO on boards suggest that the more a CEO is active outside his/her own company, the worse his/her own company's financial performance is. Although this result does not hold on boards with British nationality executives only (here no statistical significance is detected).

Moreover, some weak evidence of the negative impact of a board size is detected. In the case of the British nationality boards the negative (significant at the 5% and 10% level) coefficient estimated for ROCE supports the notion that, as reported in the earlier literature, big boards may be burdened with communication and coordination problems.

In contrast with the expectations, but consistently with the previous findings (Franks et al., 2001), the higher the proportion of non-executive directors sitting on a board (NED%), the worse firm's financial performance, but the magnitude of insider ownership does not have much of explanatory power (the coefficients are very small and only one coefficient is significant at 5%).

Interestingly, the fact that CEO is a chair is positively related to stock market performance indicates that shareholders may perceive such concentration of power as a positive sign. This result is much weaker for the British-boards sample (only 10% significance is obtained).

Tables 2, 3 and 4 show that consistently across all the model specifications the coefficients estimated for the dispersion are negative. They are significant at the 1% and 5% levels for all the specifications using shareholder returns as a dependent variable and significant at the 5% and 10% levels for the majority of specifications with ROCE. This supports Hypothesis 1. The coefficients obtained for Dispersion-salary are in absolute values greater than those estimated for Dispersion-total pay, and in the case of the ROCE regressions the estimates of Dispersion-total pay occasionally lose significance all together. This gives support to Hypothesis 2.

Moreover, several estimates of the coefficients of the interactive terms of dispersion and nationality characteristics of executives are statistically significant. First, the separation into American and overseas non-American board members shows that all the interactive terms of both dispersion measures with US board% are positive and statistically different from zero at the 1% and 5% levels. A similar, although weaker, result is obtained when the nationality of CEOs is controlled for. Here although across all the specifications the interactive term of dispersion and US CEO is positive, only the regressions using Returns as the dependent variables are significant. In neither the regressions controlling for the nationality of the non-CEO executives nor CEOs the interactive term for the non-American overseas is significant (Hypothesis 4).

No statistical significance is obtained for the interactive terms in the regressions controlling for a company being listed on the US market. However, the regressions controlling for companies' having sales in the US market have the interactive terms

significant at the 5% and 10% level for the ROCE regressions. This however, does not dilute the core finding, i.e., that the dispersion itself negatively covaries with firm performance, and that the presence of Americans on boards as 'ordinary' executives or CEOs reduces this negative relationship. To the contrary, controlling for the exposure to American business environment seems to strengthen the findings, now all the estimates of the dispersion coefficients are significant.

Table 4 shows the regression results obtained for the subsample of companies with no overseas executive board members. The results are marginally stronger than those shown in Table 2, i.e., the coefficients of dispersion are higher and more statistical significant. In addition, no interactive term with US listed and US sales is significant.

Hypothesis 1 stated that the negative relationship between the dispersion and firm performance was expected. This is true for both performance measures, although the shareholder return seems more affected than ROCE. Moreover, the negative relationship strengthens when the sample is restricted to companies with British nationality executive board members. The negative impact of dispersion is material. Looking at Dispersion-salary its impact on ROCE is -0.164 and on Returns is -0.031 (Table 2, the basic specification). This means that moving from zero Dispersion-salary to its mean value 0.153 reduces ROCE by 2.5% and shareholder returns by 0.47%. Given that the average ROCE is 6.1% and the average shareholder return is -0.1% the decline is economically significant.

Hypothesis 2 proposed that board members are more adversely affected if the differences in remuneration are not related to performance. Indeed, consistently with this hypothesis the coefficients estimated for regressions using Dispersion-salary as the dispersion measure area higher (in absolute terms) and more significant than those estimated for Dispersion-total pay.

These results are further strengthened when the sample is narrowed down to those companies only which have no foreign executes (Hypothesis 3). In the case of the companies with British board members moving from zero Dispersion-salary to its mean (0.152) reduced ROCE by 3.4% and shareholder returns by 0.8%.

Furthermore, consistently with Hypothesis 4 we find that the presence of Americans on British boards impacts on the relationship between the dispersion and the firm performance. More precisely, the presence of both 'ordinary', i.e., non-CEO, American executives as well as of American CEOs makes the remuneration dispersion work in favour of the company as measured by ROCE and shareholder returns. To focus our

attention let us look at the effect of moving from a position of having no American executives to a situation that there are 28.4% of American non-CEO executives sitting on a board (28.4% is the average number of American non-CEO executives in companies with American non-CEO executives). Now the effect of dispersion is -3.3% (=-0.217x0.153), and the effect of the interactive term 6.8% (=1.567x0.153x0.284). This means that while moving from zero dispersion to the mean dispersion reduces ROCE by 3.3%, it increases ROCE by 3.5% when 28.4% of the executives are of American nationality. Interestingly, this does not mean that having Americans is the solution. Although having Americans converts the negative impact of the remuneration dispersion into the positive one, the benefit is mitigated to some extent by the fact that ROCE is negatively associated with having American executives. The coefficient estimated for US board% is -0.214, which reduces ROCE by 6.1%.

These results are not driven by companies having business exposure to the US market. Controlling for companies being listed in the US and having sales in the US preserves the results (Hypothesis 5).

Discussion and Conclusions (to be developed)

Imposing right incentives on managers is one of the fundamental issues of the corporate governance literature.

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Table 1. Descriptive statistics and Correlations

	Mean	Standard deviation	Size	Leverage	Insiders	Board size	NED%	CEO tenure	CEO is chair	CEO on boards	Dispersion salary	Dispersion total pay	US board%	nonUS board%	US CEO	nonUS CEO	US sales	US listed	ROCE
Control variables																			
Size	12.269	2.119																	
Leverage	0.224	0.164	0.158																
Insiders	0.252	0.216	-0.488	-0.147															
Board size	8.309	2.330	0.606	0.142	-0.329														
NED%	0.489	0.118	0.424	0.189	-0.279	0.4361													
CEO tenure	1.633	0.750	-0.004	-0.036	0.020	0.002	-0.086												
CEO is chair	0.086	0.281	-0.092	-0.042	0.177	-0.129	-0.237	0.193											
CEO on boards	1.318	0.658	0.294	0.144	-0.192	0.280	0.204	0.060	0.065										
Independent variables																			
Dispersion-salary	0.154	0.078	0.007	0.044	0.005	-0.016	0.111	0.014	0.008	0.064									
Dispersion-total pay	0.168	0.093	0.077	0.046	-0.015	0.081	0.141	-0.006	-0.039	0.073	0.704								
US board%	0.038	0.107	0.237	0.030	-0.079	0.205	0.205	-0.075	-0.013	0.181	0.045	0.108							
nonUS board%	0.050	0.139	0.188	-0.013	-0.069	0.255	0.202	-0.045	-0.060	0.159	0.006	0.032	0.058						
US CEO	0.043	0.204	0.132	0.009	-0.029	0.089	0.118	-0.052	0.036	0.047	0.029	0.097	0.622	-0.004					
nonUS CEO	0.066	0.248	0.124	0.025	-0.054	0.175	0.164	-0.072	-0.027	0.086	0.043	0.066	0.012	0.719	-0.059				
US sales	0.120	0.325	0.135	-0.034	-0.115	0.109	0.055	0.008	-0.050	0.117	-0.031	0.013	0.213	-0.026	0.148	0.042			
US listed	0.273	0.446	0.420	0.071	-0.245	0.397	0.336	-0.040	-0.107	0.190	0.056	0.123	0.260	0.125	0.185	0.109	0.182		
Dependent variables																			
ROCE	0.061	0.244	0.332	-0.062	-0.105	0.111	0.046	0.117	0.038	0.034	-0.071	-0.035	0.041	0.038	0.002	0.022	0.041	0.015	
Returns	-0.001	0.046	0.102	-0.004	-0.085	0.039	0.021	0.068	0.033	0.027	-0.054	-0.069	-0.003	0.028	-0.002	0.025	0.030	-0.015	0.235

Notes: n = 2651 (sometimes less because of missing observations)

Table 2: Regression results: Performance (ROCE, Returns) as a dependent variable.

	Dispersion-salary				Dispersion-total pay			
	ROCE		Returns		ROCE		Returns	
Basic model								
Size	0.066***	(0.000)	0.000	(0.529)	0.065***	(0.000)	0.001	(0.359)
Leverage	-0.297***	(0.000)	-0.012**	(0.030)	-0.308***	(0.000)	-0.010*	(0.063)
Insiders	0.042	(0.213)	-0.009*	(0.068)	0.044	(0.199)	-0.009*	(0.066)
Board size	-0.006	(0.186)	0.000	(0.918)	-0.005	(0.209)	0.000	(0.842)
NED%	-0.158**	(0.011)	0.011	(0.173)	-0.166***	(0.008)	0.012	(0.156)
CEO tenure	0.035***	(0.000)	0.004***	(0.000)	0.036***	(0.000)	0.004***	(0.000)
CEO is chair	0.007	(0.720)	0.008***	(0.002)	0.005	(0.806)	0.008***	(0.004)
CEO on boards	-0.022***	(0.002)	-0.001	(0.400)	-0.021***	(0.003)	-0.001	(0.363)
Dispersion	-0.164*	(0.079)	-0.031***	(0.007)	-0.061	(0.311)	-0.029***	(0.002)
Ch-2(47)	1175.8***		1121.8***		1192.4***		1123.8***	
R-squared	0.305		0.320		0.295		0.324	0.305
Observations	2243		2223		2252		2232	
Controlling for foreign decomposition of non-CEO executive board members								
Size	0.065***	(0.000)	0.000	(0.570)	0.065***	(0.000)	0.001	(0.366)
Leverage	-0.282***	(0.000)	-0.012**	(0.035)	-0.303***	(0.000)	-0.010*	(0.059)
Insiders	0.040	(0.235)	-0.009*	(0.059)	0.044	(0.199)	-0.010**	(0.043)
Board size	-0.007*	(0.099)	-0.000	(0.982)	-0.006	(0.121)	-0.000	(0.821)
NED%	-0.155**	(0.014)	0.009	(0.246)	-0.159**	(0.011)	0.011	(0.169)
CEO tenure	0.036***	(0.000)	0.004***	(0.000)	0.035***	(0.000)	0.004***	(0.000)
CEO is chair	0.009	(0.615)	0.009***	(0.001)	0.007	(0.711)	0.009***	(0.001)
CEO on boards	-0.023***	(0.001)	-0.001	(0.529)	-0.022***	(0.004)	-0.001	(0.465)
Dispersion	-0.217**	(0.049)	-0.046***	(0.000)	-0.108	(0.132)	-0.038***	(0.001)
US board%	-0.214**	(0.031)	-0.072***	(0.000)	-0.124*	(0.076)	-0.052***	(0.000)
Dispersion x US board%	1.567***	(0.003)	0.408***	(0.000)	0.823***	(0.007)	0.236***	(0.000)
nonUS board%	0.131**	(0.030)	0.007	(0.489)	0.037	(0.570)	0.010	(0.356)
Dispersion x nonUS board%	-0.400	(0.238)	0.004	(0.949)	0.093	(0.769)	-0.011	(0.861)
Chi-2(51)	1187.9***		1168.2***		1162.4***		1148.8***	
R-squared	0.306		0.329		0.293		0.329	
Observations	2238		2218		2247		2227	
Controlling for nationality of CEOs								
Size	0.066***	(0.000)	0.000	(0.756)	0.065***	(0.000)	0.000	(0.511)
Leverage	-0.293***	(0.000)	-0.012**	(0.030)	-0.301***	(0.000)	-0.011**	(0.050)
Insiders	0.044	(0.185)	-0.010*	(0.055)	0.043	(0.206)	-0.010**	(0.036)
Board size	-0.005	(0.196)	-0.000	(0.880)	-0.005	(0.219)	0.000	(0.905)
NED%	-0.164***	(0.007)	0.008	(0.306)	-0.168***	(0.007)	0.010	(0.232)
CEO tenure	0.035***	(0.000)	0.004***	(0.000)	0.035***	(0.000)	0.004***	(0.000)
CEO is chair	0.007	(0.710)	0.010***	(0.001)	0.006	(0.767)	0.009***	(0.002)
CEO on boards	-0.021***	(0.005)	-0.000	(0.727)	-0.021***	(0.005)	-0.001	(0.381)
Dispersion	-0.188*	(0.064)	-0.044***	(0.000)	-0.075	(0.265)	-0.036***	(0.000)
US CEO	-0.065*	(0.096)	-0.037***	(0.000)	-0.024	(0.525)	-0.030***	(0.000)
Dispersion x US CEO	0.115	(0.524)	0.256***	(0.000)	-0.026	(0.848)	0.161***	(0.000)
nonUS CEO	-0.041	(0.224)	0.005	(0.466)	-0.029	(0.399)	0.008	(0.172)
Dispersion x nonUS CEO	0.308	(0.114)	0.005	(0.893)	0.168	(0.293)	-0.013	(0.654)
Chi-2(51)	1203.3***		1148.8***		1210.9***		1151.2***	
R-squared	0.306		0.329		0.293		0.331	
Observations	2243		2223		2252		2232	

Notes: Dispersion refers to Dispersion-salary or Dispersion-total pay as indicated in the headings of the columns; p-values are shown in parenthesis. *p < 0.10, **p < 0.05, *** p < 0.01

Table 3. Regression results with extra controls (US sales and US listing): Performance (ROCE, Returns) as a dependent variable

	US Board %								US CEO							
	Dispersion-salary				Dispersion-total pay				Dispersion-salary				Dispersion-total pay			
	ROCE		Returns		ROCE		Returns		ROCE		Returns		ROCE		Returns	
Size	0.069***	(0.000)	0.001	(0.345)	0.068***	(0.000)	0.001	(0.247)	0.069***	(0.000)	0.001	(0.502)	0.068***	(0.000)	0.001	(0.415)
Leverage	-0.291***	(0.000)	-0.012**	(0.037)	-0.308***	(0.000)	-0.010*	(0.073)	-0.295***	(0.000)	-0.011**	(0.042)	-0.305***	(0.000)	-0.010*	(0.073)
Insiders	0.043	(0.204)	-0.009*	(0.066)	0.045	(0.183)	-0.009*	(0.059)	0.046	(0.176)	-0.009*	(0.074)	0.044	(0.182)	-0.009**	(0.046)
Board size	-0.005	(0.229)	0.000	(0.818)	-0.005	(0.187)	0.000	(0.802)	-0.005	(0.245)	0.000	(0.850)	-0.005	(0.268)	0.000	(0.605)
NED%	-0.159**	(0.013)	0.011	(0.197)	-0.158**	(0.011)	0.012	(0.135)	-0.167***	(0.007)	0.009	(0.249)	-0.165***	(0.007)	0.011	(0.173)
CEO tenure	0.034***	(0.000)	0.004***	(0.000)	0.035***	(0.000)	0.004***	(0.000)	0.034***	(0.000)	0.004***	(0.000)	0.036***	(0.000)	0.004***	(0.000)
CEO is chair	0.009	(0.625)	0.009***	(0.001)	0.006	(0.729)	0.009***	(0.001)	0.007	(0.696)	0.009***	(0.002)	0.006	(0.764)	0.009***	(0.002)
CEO on boards	-0.023***	(0.002)	-0.001	(0.469)	-0.022***	(0.003)	-0.001	(0.528)	-0.023***	(0.002)	-0.000	(0.659)	-0.022***	(0.002)	-0.001	(0.382)
US listed	-0.015	(0.800)	0.012	(0.152)	-0.049	(0.145)	0.000	(0.993)	-0.030	(0.582)	0.010	(0.230)	-0.058*	(0.079)	-0.002	(0.621)
US sales	-0.058*	(0.090)	-0.003	(0.529)	-0.032	(0.276)	-0.003	(0.423)	-0.060*	(0.087)	-0.004	(0.348)	-0.034	(0.246)	-0.004	(0.340)
Dispersion	-0.275**	(0.011)	-0.040***	(0.002)	-0.143**	(0.042)	-0.041***	(0.000)	-0.244**	(0.021)	-0.037***	(0.003)	-0.114*	(0.096)	-0.041***	(0.000)
US board%	-0.222*	(0.069)	-0.087***	(0.000)	-0.119	(0.112)	-0.053***	(0.001)								
Dispersion x US board%	1.517**	(0.028)	0.513***	(0.000)	0.744**	(0.028)	0.234***	(0.000)								
US CEO									-0.075	(0.122)	-0.042***	(0.000)	-0.025	(0.486)	-0.031***	(0.000)
Dispersion x US CEO									0.139	(0.597)	0.282***	(0.000)	-0.062	(0.629)	0.159***	(0.000)
Dispersion x US listed	-0.396	(0.417)	-0.096	(0.104)	-0.118	(0.616)	-0.019	(0.501)	-0.270	(0.564)	-0.083	(0.126)	-0.056	(0.801)	-0.007	(0.789)
Dispersion x US sales	0.434**	(0.037)	0.021	(0.462)	0.284*	(0.059)	0.028	(0.224)	0.471**	(0.030)	0.031	(0.289)	0.294**	(0.049)	0.030	(0.182)
Chi2(53)	1224.6***		1155.4***		1184.5***		1163.8***		1279.7***		1146.7***		1258.3***		1171.5***	
R^2	0.312		0.331		0.301		0.330		0.309		0.330		0.302		0.331	
Observations	2238		2218		2247		2227		2243		2223		2252		2232	

Notes: Dispersion refers to Dispersion-salary or Dispersion-total pay as indicated in the headings of the columns; p-values are shown in parenthesis. *p < 0.10, **p < 0.05, *** p < 0.01

Table 4: Regression results for the sample of firms with British nationality executives only: Performance (ROCE, Returns) as a dependent variable.

	Basic regression								Controlling for US business exposure							
	Dispersion-salary				Dispersion-total pay				Dispersion-salary				Dispersion-total pay			
	ROCE		Returns		ROCE		Returns		ROCE		Returns		ROCE		Returns	
Size	0.075***	(0.000)	-0.000	(0.619)	0.073***	(0.000)	0.000	(0.990)	0.077***	(0.000)	-0.000	(0.841)	0.075***	(0.000)	0.000	(0.849)
Leverage	-0.357***	(0.000)	-0.009	(0.159)	-0.357***	(0.000)	-0.008	(0.213)	-0.358***	(0.000)	-0.009	(0.140)	-0.357***	(0.000)	-0.006	(0.334)
Insiders	0.024	(0.526)	-0.007	(0.243)	0.023	(0.558)	-0.007	(0.272)	0.028	(0.434)	-0.007	(0.279)	0.023	(0.535)	-0.006	(0.287)
Board size	-0.008**	(0.030)	0.000	(0.489)	-0.006*	(0.062)	0.000	(0.468)	-0.007**	(0.044)	0.000	(0.586)	-0.006*	(0.067)	0.000	(0.491)
NED%	-0.244***	(0.000)	0.006	(0.510)	-0.258***	(0.000)	0.006	(0.552)	-0.239***	(0.000)	0.004	(0.657)	-0.250***	(0.000)	0.006	(0.555)
CEO tenure	0.037***	(0.000)	0.005***	(0.000)	0.037***	(0.000)	0.005***	(0.000)	0.035***	(0.000)	0.005***	(0.000)	0.036***	(0.000)	0.005***	(0.000)
CEO is chair	-0.017	(0.362)	0.007*	(0.051)	-0.022	(0.227)	0.006	(0.105)	-0.015	(0.422)	0.006*	(0.076)	-0.020	(0.279)	0.006*	(0.089)
CEO on boards	-0.010	(0.236)	-0.000	(0.782)	-0.010	(0.203)	-0.001	(0.614)	-0.010	(0.235)	-0.001	(0.713)	-0.011	(0.189)	-0.001	(0.501)
US listed									0.051	(0.634)	0.025	(0.137)	0.007	(0.900)	0.010	(0.272)
US sales									-0.038	(0.383)	-0.001	(0.828)	-0.024	(0.519)	-0.002	(0.663)
Dispersion	-0.225**	(0.045)	-0.052***	(0.000)	-0.114	(0.127)	-0.039***	(0.001)	-0.250**	(0.032)	-0.042***	(0.002)	-0.133*	(0.090)	-0.039***	(0.003)
Dispersion x US listed									-0.883	(0.352)	-0.185	(0.147)	-0.478	(0.257)	-0.088	(0.188)
Dispersion x US sales									0.371	(0.162)	0.016	(0.672)	0.280	(0.147)	0.029	(0.370)
Chi2(45)	1097.5***		857.3***		1037.4***		843.0***									
Chi2(49)									1077.3***		850.1***		1001.4***		857.7***	
R-squared	0.343		0.333		0.335		0.333		0.351		0.337		0.339		0.336	
Observations	1647		1625		1653		1631		1647		1625		1653		1631	

Notes: Dispersion refers to Dispersion-salary or Dispersion-total pay as indicated in the headings of the columns; p-values are shown in parenthesis. *p < 0.10, **p < 0.05, *** p < 0.01