

The Link Between Performance and Changes in the Size and Stability of a Firm's Officers and Directors

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Abstract

If corporate governance is working effectively then the size and stability of the officer/director group will be sensitive to the firm's performance. A sample of 9817 firms drawn from 52 countries is examined over the period 2001 to 2002. Cross-sectional analysis indicates that there is a positive relationship between prior period performance and changes in the size and stability of the officer/director group for the full sample. This result is sensitive to legal system as well as to inclusion of USA firms.

Key Words: corporate governance, performance, number of officers and directors, stability of officers and directors

JEL Classification: F02, G32, G34

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1. Introduction

Recent research into corporate governance outcomes examines the impact of a range of factors including board size, corporate ownership and control, the market for corporate control and environmental factors, particularly the prevailing legal system.¹ This literature generally focuses on chief executive officer (CEO) turnover following poor corporate performance though Warner, Watts and Wruck (1988) extend this analysis to CEO, President or Board Chairman with similar findings. More recently, the CEO turnover literature focused on USA firms though has been extended to firms outside the USA by Gibson (2003) focusing on Asian firms and Defond and Hung (2003) who identify the impact of law enforcement on the relationship between performance and CEO turnover. To date, the literature has not attempted to analyse the relationship between past performance and changes in the broader officer and director group and this paper uses a unique data set to analyse this relationship on a global basis rather than focus on USA firms alone.

This paper extends the work of Gibson (2003), Defond and Hung (2003) and Warner, Watts and Wruck (1988), focusing on a group of senior management, the officers and directors of the firm, rather than the CEO or senior management alone. We postulate that if corporate governance is working effectively, then the changes in the group of officers and directors that responsible for the firm will be correlated with firm performance. We argue that a rational response to poor performance would be the removal or replacement of poorly performing senior managers more generally, not just the chief executive officer, and a response to good performance could include

¹ See Claesens, Djankov and Lang (2000), Denis (2001), Denis and McConnell (2003), Demsetz and Villalonga (2001), Gibson (2003), Hermalin and Weisbach (1998 and 2003), Holderness (2003), Johnson, Boone, Breach and Friedman (2000), La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998), Lemmon and Lins (2003), Lins (2003), Morck, Shleifer and Vishny (1988).

growth in the officer and director group along with greater stability in the officer and director group over time.

Our sample consists of 9817 firms that are drawn from 52 countries around the world (OSIRIS data set, provided by Bureau Van Dyck Electronic Publishing) and this allows us to take a more global view in analysis of the relationship between performance and changes in a firm's officers and directors. We focus on changes in the number of individuals that make up the senior management group (percentage change in the total number of officers and directors) as well as the stability of the group (percentage of the officer and director group that remain from year to year) using 2001 and 2002 data for each of the firms. Return on equity and return on total assets are used as measures of performance. Measures of independence, diversification, size, leverage, industry dummy variables and country dummy variables are also included to control for confounding effects.

We identify a positive relationship between the change in the size and stability of the officers and directors group and prior year firm performance. This result is sensitive to legal system and, to some extent, whether the USA firms are included in the analysis. A brief review of the prevailing empirical evidence is provided in the following section, with data description appearing in Section 3, results of analysis reported in Section 4 and the summary and conclusions presented in Section 5.

2. Corporate Performance, Directors and Senior Management

Corporate governance can be defined in a number of ways (Denis and McConnell, 2003, Shleifer and Vishny, 1997) though an important part of governance is the appointment, supervision and removal of senior management and the directors of the firm. The interplay between the shareholders, board of directors and the senior

management of the firm is critical to successful governance of a firm (Hermalin and Weisbach, 2003) and decisions concerning the number and composition of the officers and the directors in the firm are part of this process (Hermalin and Weisbach, 2003, Barnhart and Rosenstein, 1998).

An important characteristic of a sound corporate governance system is the ability to censure senior management where the board believes that their performance is unacceptable. Thus CEO turnover should reflect the proper functioning of the corporate governance system. There have been a number of USA based studies² dealing with this question though Defond and Hung (2003) and Gibson (2003) provide international evidence of the relationship between performance and CEO turnover. Gibson (2003) focuses on emerging Asian countries with the finding that CEOs are more likely to be removed when the firm is performing poorly except where firms are tightly held. Defond and Hung (2003) discuss the importance of the legal protection of investors and the impact that this has on CEO turnover. They find that the existence of strong law enforcement is required for a link to exist between CEO turnover and performance.

Thus while there is evidence of corporate governance working to censure errant CEOs there is little evidence of research into the impact of poor performance on the wider group of officers and directors of the firm. For example the entire board of directors, or specific officers other than the CEO, may be responsible for poor performance. While takeovers provide one costly means of replacing poor management staff it is also possible for stakeholders, acting individually or as a group, to take actions against the officers of the firm and the members of the board of directors. We attempt to deal with this broader question here.

² See Dahya, McConnell and Travlos (2002), Defond and Park (1999), Kang and Shivdasani (1995), Kaplan (1994a and 1994b), Murphy and Zimmerman (1993), Volpin (2002), Warner, Watts and Wruck (1988), Weisback (1988).

If corporate governance is functioning properly it is expected that changes in the firm's officers and directors will reflect prior firm performance. If a firm has performed poorly then we would expect to see some change in the officers and directors who are accountable for performance of the firm. It is clear that we do not hold that the board of directors is sacrosanct because poor performance may require changes in both the officers of the firm and members of the board of directors. Further, with continued superior performance the officer and director group within the firm will tend to be more stable over time and if the firm is growing there will also be pressure for this group to expand to deal with the added complexities that accompany a larger firm. We are not arguing that the board of directors will increase as there is considerable evidence to suggest that smaller boards are more efficient (Eisenberg, Sundgren and Wells, 1998, Yermack, 1996) but we are suggesting that there may be pressure for the officer and director group to increase to deal with the management pressures found with a growing firm. This leads to our first hypothesis.

Hypothesis 1a: The change in the number of officers and directors in a firm is positively correlated with corporate performance.

This hypothesis is consistent with the initial argument that the firm will decrease the size of its officer and director group after poor performance and increase this group after strong performance. Essentially, we treat the officers and directors like any other resource available to the firm. Yet, good performance need not result in an increase in the size of this group. It is possible that there is an optimal level of officers and directors for the firm and so the relationship between the number of the officers and directors and past performance may be non-linear with a strong positive

relation existing for poor performance and a weaker positive relationship, or perhaps a zero relationship existing when the firm is profitable. This gives rise to the second part of Hypothesis one.

Hypothesis 1b: The change in the number of officers and directors in a firm is more strongly positively correlated prior period losses than with prior period profits.

It is possible that there will be no change in the size of the board or directors at all regardless of the prior period change in profit. For example, the firm's officer and director group may already be at its optimum size. Yet, there could be considerable changes in the actual set of individuals that make up the officers and the directors in the firm after particularly poor performance. Thus it may be important to look at the stability of the officers and directors in the firm. In this case the better the performance the more likely the officer and director group will remain unchanged. This gives rise to the second hypothesis.

Hypothesis 2a: The stability of the officer and director group in a firm is positively correlated with corporate performance.

It is possible that there will be no change in the composition of the officer and director group when the firm is doing well while there could be considerable changes after poor performance. This gives rise the second part of the hypothesis.

Hypothesis 2b: The stability of the officer and director group in a firm is positively related with prior period losses. There is no relationship between stability and prior period profits.

Defond and Hung (2003) and Denis and McConnell (2003) identify the importance of the legal system to efficient corporate governance outcomes and Johnson, et al. (2000) use the Asian crisis to emphasise the impact of poor legal protection on minority shareholders and other stakeholders on the firm. Thus it is possible that cross-sectional variation in legal system could affect the sensitivity of changes in the group of officers and directors to past firm performance. This is particularly borne out in the research of La Porta et al. (1998) where it is found that protection and enforcement of investor rights is critical to the evolution of corporate finance and corporate governance. This gives rise to the third hypothesis.

Hypothesis 3: A positive relationship between prior performance and the size and the stability of the officer and director group is more likely for firms operating in a country with a common law based legal system.

3. Data

Firm specific data for the years 2001 and 2002 is obtained from the OSIRIS database (Bureau Van Dyck Electronic Publishing). This data set includes a list of the names and the official titles of the officers and directors for a large sample of firms drawn from around the world. Titles include chairman, vice chairman, directors, various categories of president and vice president as well as other key members of the firm. Further, examples of senior officers include the company chief executive officer, chief financial officer, chief operating officer and secretary. There are a range

of other officers including those with responsibilities for finance, accounting, strategy, operations, human resources, information, general manager, engineer, economist, inspector, investments, marketing, innovation, medical, legal matters, auditors and treasurers. It is also quite common for one person to be responsible for one or more of these positions. Further, there is considerable variation in the level of detail and the consistency in detail provided for individual officers and directors listed in the data set. For example, it is not possible to clearly identify a firm's CEO or indeed whether a particular individual is a director of the firm for a number of countries in the sample. As a result we do not attempt to conduct analysis at the level of board of directors or CEO because to do so would unnecessarily restrict the number of countries that are included in the study.

A list of the officers and directors are available for 16194 firms in 2001 and for 20429 firms in 2002. On matching the 2001 and 2002 firms we were left with 12376 firms with the number of officers and directors available for both 2001 and 2002. There are 25801 individual company observations available on OSIRIS for the years 2001 and 2002. Some 12740 observations are lost where company data was not available in both 2001 and 2002. A further 10 company observations with missing OSIRIS independence indicator values are dropped, leaving an available sample of 13051 observations. On matching this data set with the percentage change in the number of the officers and directors and the stability of the officer and director group, the sample is further reduced to 11228 firm observations. As there is only one firm for Lebanon this observation is also dropped giving a final sample size of 11227 observations. There is considerable variation in the range of values existing for each of the accounting variables used in this study. Even with such a large sample the impact of extreme values can be considerable and so a four standard deviation filter is

applied to each of the accounting variables as well as the percentage change in the number of officers and directors to reduce the impact of extremely large and extremely small values. This results in a final sample size of 9817 firm based observations.

The total of the officers and directors reported in OSIRIS is calculated for each firm in the final sample for 2001 and 2002 and the percentage change (PERCCHGN) is calculated as the ratio of the change in the number of officers and directors from 2001 to 2002 to the number of officers and directors in 2001. From 2001 to 2002 there is on average an increase in the size of the officer and director group of 7% (Table 1) though the maximum and minimum values indicate the considerable variation that exists in the sample from firm to firm. The stability of the officer and director group (CONTINPC) is defined as the ratio of the number of the officers and directors in the firm in 2001 that are still with the firm in 2002 to the total number of officers and directors in the firm in 2001. As indicated in Table 1, this averages 81% for the sample suggesting that on average around 81% of the directors in the officer and director group in 2001 were still in the this group in 2002. There is also extensive accounting data available in the OSIRIS data set for estimation of performance measures and for control variables. Consistent with Gibson (2003) we rely on accounting earnings to measure performance. The earnings numbers that we use in this study are return on shareholders funds (R_SHF) with sample average loss of 6% for 2001 and return on total assets (R_TA) with sample average loss of 4% for 2001. We do not use current period profit in the following analysis. For many of the smaller firms in the sample, a reduction in the number of senior staff by one could have a substantial impact on the current period profit. Further, it is also more likely that adjustments to the officers and the directors will occur in the year following the

annual reports because many of the critical stakeholders in the firm do not receive the full set of accounts until well after the end of the financial year.

[Insert Table 1 about here]

The legal system codes, the number of firms collected from each country, percentage of the total and average performance measures are reported in Table 2 for each of the countries included in the sample. The legal system categorisation is based on the World Fact Book, as at June 2004.³ While this data is not sampled at the same time as the OSIRIS data it should provide a reasonable indication of the legal system operating within each of the countries that are included in the sample.⁴ Three categories of legal system are used in this paper: CIVIL for the 27 countries with a civil law based legal system; COMMON for the 14 countries with a common law legal system; and MIXED for the 11 countries that exhibit combinations of the common and civil systems, common and Islamic systems or civil and Islamic systems. The 9817 firms are split across 52 countries with the three countries contributing the most firms being the USA with 3670 firms (37.38%), China with 993 firms (10.12%) and the UK with 648 firms (6.60%). While Turkey reports the lowest average return to shareholders funds of -44.27% the Russian Federation reports the highest at 22.59%. The Russian Federation also reports the maximum for the average return on total assets of 12.34% though Sweden now reports the least average return on total assets of -11.23%.

[Insert Table 2 about here]

³ <http://www.cia.gov/cia/publications/factbook/fields/2100.html>

⁴ We prefer to rely on this more up to date source than use the measures that appear in the literature which are generally based on the 1980s or early 1990s.

We use the OSIRIS independence indicator (See Appendix) to capture the impact of large shareholders on the relationship between past performance and the change in the size and stability of the firm's officers and directors though there is some debate on the impact of these shareholders on a firm's corporate governance (Holderness, 2003, Lins, 2003, Lemmon and Lins, 2003).⁵ The indicator was available in both 2001 and in 2002 though we use the 2002 indicator series because of the greater sample coverage provided in 2002 data set. The independence indicator is restated as a set of dummy variables (OA, OB, OC and OU) for inclusion in regression analysis. A number of other control variables are also collected to capture firm specific characteristics including firm size and leverage as well as a diversification dummy variable and industry and country dummy variables. Our measure for firm size (LBVA) is the natural log of the book value of assets with mean of 11.62 and leverage (LVG) is proxied using the total liabilities to total assets with mean value of 50.92% for the sample (see Table 1).

The industry and diversification variables are obtained from each firm's SIC division code. SIC industry division codes and descriptions are reported in Table 3 along with the percentage of the sample allocated to each of the divisions and the average performance measures for the division. The majority of the firms fall within the manufacturing industry (42%) though there are also quite large number of firms in the finance insurance and real estate industry (18%) and the services industry (15%). Those firms earning greatest losses are centred in the services industry with average return on shareholders funds being a loss of 22% with the greatest positive return in the public administration industry (40%). Our measure of diversification (DIVERS)

⁵ This variable is taken from the 2002 data to maximise the available sample size as the coverage of this variable has increased over time in the OSIRIS database with further analysis is undertaken by Bureau Van Dyck Electronic Publishing

is a dummy variable with a value of zero except where the firm's primary and secondary SIC code are drawn from different divisions.

[Insert Table 3 about here]

4. Analysis

This section focuses on the relationship between prior performance and changes in the size and the stability of the firm's officers and directors. There are two models to be estimated. The first, dealing with management group size, has the percentage change in the number of officers and directors in the firm as the dependent variable and the second, dealing with management group stability, has the percentage of the officers and directors in the firm in 2001 that continue with the firm in 2002 as the dependent variable. These models provide a specific test of whether prior period profits or losses play a role in the decision to change the officer and director group in the following year. Ordinary least squares regression coefficients are reported along with t-statistics, adjusted for heteroscedasticity (White, 1980), with the regression models taking the form:

$$DIRCHAR = \begin{cases} \alpha_0 + \alpha_1 PERF_{2001} + \alpha_2 LBVA_{2001} + \alpha_3 LVG_{2001} \\ + \alpha_4 OA + \alpha_5 OB + \alpha_6 OU + \alpha_7 DIVERS_{2001} \\ + \sum_{i=1}^I \beta_i COUNTRY_i + \sum_{j=1}^J \delta_j INDUSTRY_j + \varepsilon_{n,2002} \end{cases} \quad (1)$$

where $DIRCHAR$ = either $PERCCHGN$ which is the percentage change in the number of officers and directors over the period 2001 to 2002 or $CONTINPC$ which is the percentage of the officers and directors in the firm in 2001 who remain with the firm through to 2002,

$PERF_{2001}$ = either return on shareholders funds (R_SHF) or return on total assets (R_TA) where return is the profit or loss before tax, and both shareholders funds and total assets are measured as at the end of the 2001 accounting period,

$LBVA_{2001}$ = natural log of the book value of total assets expressed in USDs as at the end of the 2001 accounting period,
 LVG_{2001} = ratio of total liabilities to total assets as at the end of the 2001 accounting period,
 OA = OSIRIS independence indicator set at either A-, A or A+, as reported for 2002,
 OB = OSIRIS independence indicator set at either B-, B or B+, as reported for 2002,
 OU = OSIRIS independence indicator is not available in 2002
 $DIVERS_{2001}$ = dummy variable with value zero if the primary and secondary industry division is the same or if the secondary industry division is blank and one otherwise, based on 2002 reported activity,
 $COUNTRY_i$ = dummy variable for country i,
 $INDUSTRY_i$ = dummy variable for industry i, based on primary industry code,
 $\epsilon_{n,2002}$ = residual term.

This model is extended to include an interaction term for tests of asymmetry in the reaction to previous year performance. The model is also expanded to include interaction terms to test for the impact of legal system.

4.1 The relationship between officers and directors and past performance

The results from OLS regressions, with White's adjusted t-statistics, are reported in Table 4. These are based on the performance measure, return on shareholders funds. The analysis was also completed using the return to total assets though these results are not reported separately as they are essentially the same. Further, results are reported for both the change in the number of the firm's officers and directors and the stability of the officer and director group. There are three basic sets of results, reported for the size and stability analysis. The first is based on the full sample of firms, the second includes an interaction term to test for asymmetry in the response to profits and losses and the third focuses on non-USA firms.

[Insert Table 4 about here]

The first set of results, referring to all firms in the study, appears in column 2 and column 5 of Table 4. This analysis provides a test of the impact of past performance on the officer and director group based on the full sample. The past performance coefficient is positive and statistically significant at the 5% level in both regressions. Thus, both the change in the number of officers and directors and the stability of the officer and director group are positively correlated with past performance. These results are consistent with hypothesis 1a.

Hypothesis 1b proposes that there is asymmetry in the relationship between the change in the officer and director group and past profits or past losses. Columns 3 and 6 of Table 4 report the results of estimating the model including an interaction term ($R_SHF \times POS$) being the product of a dummy variable (POS) with a value of one if the return measure is positive and zero otherwise and the return on shareholders funds (R_SHF). The t-test on this interaction term coefficient provides a test for asymmetry in the reaction to profits and losses. If the coefficient is statistically significant then there is asymmetry in the reaction to profits and to losses as proposed in hypothesis 1b. The coefficient on the interaction term is not statistically significantly different from zero in either regression. Thus there is no evidence to support the argument that there is asymmetry in the reaction to prior period profit or loss. This result does not support hypothesis 1b though the statistically significant positive shareholders return coefficients still support hypothesis 1a. These results suggest that there is a positive relationship between past performance and the size and the stability of the firm's officer and director group but there is no evidence to suggest that these relationships are asymmetric with respect to prior period profits or prior period losses.

The third set of analyses deals with the impact of the USA firms on the results. This is an important question given the number of USA firms included in the sample. USA firms account for around 37% of the sample (Table 2) and so it is important ascertain whether the results are explained by the conditions existing in the USA. Columns 4 and 7 of Table 4 report analysis for all firms excluding USA firms. The coefficient for the stability of the officer and director group remains statistically significant and positive though this is no longer the case for the change in the size of the officer and director group. Thus the positive relationship observed between past performance and the change in the size of the officer and director group does appear to be USA based. Nevertheless, the USA firms alone do not explain the positive relationship between the stability of this group and past performance. This coefficient is both positive and statistically significant. The year 2001 was particularly difficult for USA firms and it may be that USA firms are less reticent about adjusting the size of the officer and director group during difficult periods. We leave this question to future research.

Firm size (LVBA) coefficient is positive but it is not statistically significant except at the 10% level for the change in the size of the officers and directors group when the USA firms are excluded (column 4 of Table 4). In general, the larger the firm the greater the change in the officer and director group from 2001 to 2002. The leverage parameter is negative in all cases though it is only statistically significant when the USA firms are dropped from the analysis. Thus, decreases (increases) in the size or stability of the group of officers and directors are more likely for firms with high (low) leverage over the period from 2001 to 2002. Our measure of diversification is not statistically significant in any of the regressions and there is some variation in the coefficient sign.

The OSIRIS independence indicator provides a measure of the independence of the company with respect to large shareholders. Categories OA, OB, OC and OU are allocated depending on whether the recorded block holding lies in the range 0% to 24.99%, 25% to 49.99%, exceeds 49.99% or is unknown. We exclude the category OC dummy from the regressions, leaving the remaining three dummy variables, OA, OB and OU. The OA coefficient is positive and statistically significant for each of the three regression analyses based on the change in the size of the officer and director group (columns 2, 3 and 4). This suggests that the increase in size of the officer and director group from 2001 to 2002 is greater for firms with less shareholder concentration. This is also apparent for the non-USA firms for OB. The reverse is true for the stability of the officer and director group with lower stability from 2001 to 2002 being associated with more concentrated shareholding, though this relationship is not statistically significant for the non-USA firms in the sample. The OU classification has not been allocated an independence category and so we do not attempt to explain the coefficients reported for this variable.

Each regression includes a full set of country dummy variables, excluding USA for the full data set and for the non-USA subset we exclude China. Industry dummy variables, excluding the manufacturing dummy variable, are also included in all regressions. The country and industry dummy variable coefficients are not reported separately.

4.2 The impact of legal system

Table 5 summaries the analysis of the impact of legal system on the models described in equation (1) using a set of two legal system dummy variables, CIVIL and MIXED. The results were obtained for both performance measures, return on

shareholder funds and return on total assets though given the similarity of these results we only report the return on shareholders funds results here. Further, analysis is carried out for both the full sample (all firms) and for the non-USA firms (Ex USA) to gauge the impact of this large component of the sample firms.

[Insert Table 5 about here]

The coefficient on the R_SHF variable for common law countries is positive and statistically significant both with (at the 5% level) and without (at the 10% level) the USA firms with respect to the change in the size of the officer and director group. The t-statistics associated with the coefficients on the interaction terms between R_SHF and CIVIL and R_SHF and MIXED show that there is no statistically significant difference between the common law countries and the other countries in terms of the relationship between the change in the number of officers and directors and past period performance though some of the parameters, particularly for the mixed system countries, are negatively signed. In further analysis (not reported separately) using the three dummy variables for legal system, the CIVIL and MIXED coefficients are also not statistically significantly different from zero. It is clear that the coefficients for the CIVIL and MIXED legal systems are not measured with much precision and this is consistent with view that legal system matters with respect to the impact of prior period performance on the change in the size of the officer and director group.

There is also a statistically significant positive relationship evident for the common law countries both with and without the USA firms between prior period performance and the stability of the officer and director group. The interaction term

for the firms from civil or mixed legal systems is negative and generally statistically significant. Prior period performance has a statistically significantly lesser impact on the stability of the officers and director group in firms that operate in civil or mixed law countries than in firms that operate in common law countries. This is apparent whether the USA firms are included in or excluded from the analysis. Legal system does have an impact on the relationship between the stability of the officer and director group and prior period performance. The regressions were also run with a full set of dummy variables (not reported separately) and it was found that the coefficients estimated for the firms falling within the CIVIL or MIXED legal systems were not statistically significantly different from zero. These results are generally consistent with the existence of a legal system effect as stated in hypothesis 3. The positive relationship between changes in the size and stability of the officer and director group and prior period performance is strongest in common law countries.

There is no evidence of a statistically significant firm size effect for the firms operating under a common law legal system when the full set of legal system interaction terms is included in the analysis (not reported separately). The coefficients for the CIVIL and the MIXED interaction terms suggest that there is some statistically significant differences between common law based firms and the civil law or mixed law based firms though this is not uniform. One exception is the statistically significant positive coefficients reported for the mixed legal systems, consistent with large firms mixed legal countries having more stable officer and director groups over the period from 2001 to 2002 than firms in the common law countries.

As noted above, the change in the stability and the number of the officers and directors from 2001 to 2002 is generally negatively correlated with leverage. This is particularly evident for firms operating in civil law systems when compared with

firms from common law countries including the USA. Further, there is no evidence of a statistically significant diversification effect with respect to changes in size and stability of the officer and director group. There is also no evidence of legal system impact on the impact of board independence on the stability of the officers and directors from 2001 to 2002 though there is considerable variation with respect to the change in the size of this group. In general, for a given level of independence, the firms from countries with civil or mixed law systems have tended to increase the size of the officer and director group relative to the firms from common law countries over the period 2001 to 2002. This tendency is evident for the OA and the OB in particular.

4.3 Discussion

It would appear that both the size and the stability of the firm's officer and director group are sensitive to prior period performance. This result is robust to firm size, leverage, firm diversification, block holding, country and industry. Consistent with the recent literature, the legal system has an impact on the way that firms react to prior period performance. The officer and director group in firms operating in common law countries is more sensitive to prior period performance than the officer and director group in firms operating in civil law or mixed law countries. Losses tend to be followed by a reduction in the size and the stability of this group while profits tend to be followed by increased size and stability of the group. While the size effect may be mainly USA firm driven the stability effect is common across the common law country firms. This relationship between the size and stability of the officer and director group is not apparent for firms that operate in civil or mixed law systems.

It is possible that the changes in size and stability that we observed in this study are the result of conscious decisions to sack or to hire staff. Such actions would form an integral and well documented part of the firm's governance system. It is also possible that strongly performing firms attract good staff and that once the firm begins to perform poorly individuals start to look elsewhere for employment. This later impact would probably not be well documented and is a rather passive response to human resource management. Nevertheless, though officers or directors may choose to leave the firm it is also within the firm's power, and certainly part of the governance function of the firm, to offer suitable enticements to maintain key staff. Thus, even this more passive response to past performance may be consistent with good governance. The critical observation made here is that the variation in the size and stability of the officer and director group appears to be positively related to prior period performance regardless of whether this is due to conscious hiring or firing of staff or due to less direct processes.

Finally, the USA based firms make up a considerable portion of both the common law countries and the total sample that we use in this paper. As a result, separate analysis is provided both including and excluding USA firms. We find that the impact of past performance on the size of the officer and director group is sensitive to whether USA firms are included in the sample, though the positive relation observed between the stability of the officer and director group and prior performance is insensitive to the inclusion of USA firms.

5. Conclusions

This study adds to the growing evidence of the relationship between prior performance and senior management change. Due to the richness of our data we are

able to cast more widely than just the chief executive officer. We find a positive relationship between past performance and changes in the size and stability of the officer and director group using a large sample of firms drawn from over 50 countries. This relationship does not appear to be asymmetric with respect to profits or losses.

Further, analysis shows that the size and stability of the officer and director group appears to be explained by firms located in common law countries and to some extent whether they are USA firms. While we are unable to determine whether this relationship is due to active decision making at the firm level or to a passive response to staff movements both explanations are consistent with a system of governance that exists within the firm and reacts to poor performance.

Appendix

OSIRIS independence indicator

This indicator provides a measure of the independence of the company with respect to the shareholders. There are eight categories, A+, A, A-, B+, B, B-, C and U.

All companies with a missing independence indicator are excluded from the analysis. The U category is allocated where the level of independence is unknown though those companies with a U category remain in the data set and a dummy variable is set up with a value of one where the firm is classified as U and zero otherwise.

Indicator A+, A, A-

This is allocated to companies where no recorded shareholder has an ownership percentage exceeding 24.99%. The sub categories of A+, A and A- refer to the level of certainty associated with this allocation. Essentially, it is assumed that the more specifically identified shareholders the greater the chance that the 24.99% hurdle reflects the actual maximum individual ownership level. If the company has 6 or more identified shareholders whose ownership percentage is known then A+ is allocated to the company. If the company has 4 or 5 identified shareholders whose ownership percentage is known then A is allocated to the company. If the company has 1 to 3 identified shareholders whose ownership percentage is known then A- is allocated to the company. If a firm is classified as either A+, A and A- then the dummy variable, OA, is set to a value of one, with zero otherwise.

Indicator B+, B, B-

This is allocated to companies where no recorded shareholder has share ownership exceeding 49.99% but having one or more shareholders with an ownership percentage 24.99%. The sub categories of B+, B and B- refer to the level of certainty associated with this allocation. If the company has 6 or more identified shareholders whose ownership percentage is known then B+ is allocated to the company. If the company has 4 or 5 identified shareholders whose ownership percentage is known then B is allocated to the company. If the company has 1 to 3 identified shareholders whose ownership percentage is known then B- is allocated to the company. If a firm is classified as either B+, B and B- then the dummy variable, OB, is set to a value of one, with zero otherwise.

Indicator C

This is allocated to companies with a recorded shareholder who has share ownership exceeding 49.99%. This is also allocated to companies that are classified as having an ultimate owner. If a firm falls under this classification then the dummy variable, OC, is set to a value of one, with zero otherwise.

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Table 1, Descriptive Statistics

| | Mean | Minimum | Maximum | Standard Deviation | Skewness | Kurtosis |
|----------|---------|-----------|----------|-----------------------|----------|----------|
| R_SHF | -6.1695 | -379.9100 | 349.4500 | 54.3407 | -2.6818 | 12.7032 |
| R_TA | -3.9138 | -276.0100 | 123.5700 | 27.0727 | -3.8981 | 22.5623 |
| LBVA | 11.6274 | -2.3169 | 20.7220 | 3.2761 | -1.5011 | 4.2171 |
| LVG | 50.9216 | 0.0000 | 100.0000 | 24.9088 | -0.0863 | -0.8846 |
| PERCCHGN | 7.4679 | -90.0000 | 260.0000 | 35.8195 | 3.6207 | 16.6908 |
| CONTINPC | 80.9874 | 0.0000 | 100.0000 | 22.9225 | -1.3096 | 1.2070 |

R_SHF is the return on shareholders funds, R_TA is the return on total assets, LBVA is the natural log of the book value of assets, LVG is a leverage measure (total liabilities/total assets) and these variables are either as at 2001 or for the year ended in 2001. PERCCHGN is the percentage change in the number of officers and directors over the period from 2001 to 2002. CONTINPC is the number of the officers and directors who are with the company in both 2001 and 2002 expressed as a percentage of the total number of officers and directors in 2001. (N = 9817)

Table 2, Countries in the Study

| COUNTRY | CODE | COUNT | % | CIVIL | COMMON | MIXED | R_SHF | R_TA |
|--------------------|------|-------|-------|-------|--------|-------|--------|--------|
| ARGENTINA | AR | 42 | 0.43 | 0 | 0 | 1 | -2.68 | 0.31 |
| AUSTRALIA | AU | 68 | 0.69 | 0 | 1 | 0 | -7.31 | -8.86 |
| AUSTRIA | AT | 56 | 0.57 | 1 | 0 | 0 | 2.43 | -0.60 |
| BAHRAIN | BH | 3 | 0.03 | 0 | 0 | 1 | 8.13 | 3.99 |
| BELGIUM | BE | 7 | 0.07 | 1 | 0 | 0 | 18.89 | 0.68 |
| BERMUDA | BM | 101 | 1.03 | 0 | 1 | 0 | -11.73 | -6.97 |
| BRAZIL | BR | 246 | 2.51 | 1 | 0 | 0 | 2.37 | 2.82 |
| CANADA | CA | 528 | 5.38 | 0 | 1 | 0 | -13.23 | -8.91 |
| CAYMAN ISLANDS | KY | 48 | 0.49 | 0 | 1 | 0 | -10.03 | -5.10 |
| CHILE | CL | 11 | 0.11 | 1 | 0 | 0 | 13.9 | 3.10 |
| CHINA | CN | 993 | 10.12 | 1 | 0 | 0 | 3.87 | 3.21 |
| COLOMBIA | CO | 10 | 0.10 | 1 | 0 | 0 | 10.46 | 2.66 |
| CZECH REPUBLIC | CZ | 8 | 0.08 | 1 | 0 | 0 | 12.08 | 2.35 |
| DENMARK | DK | 84 | 0.86 | 1 | 0 | 0 | 1.72 | -0.54 |
| EGYPT | EG | 3 | 0.03 | 0 | 0 | 1 | 21.14 | 1.75 |
| ESTONIA | EE | 3 | 0.03 | 1 | 0 | 0 | 17.75 | 7.49 |
| FINLAND | FI | 68 | 0.69 | 1 | 0 | 0 | 12.54 | 5.61 |
| FRANCE | FR | 435 | 4.43 | 1 | 0 | 0 | 10.4 | 3.74 |
| GERMANY | DE | 449 | 4.57 | 1 | 0 | 0 | -3.5 | -3.19 |
| GREECE | GR | 43 | 0.44 | 1 | 0 | 0 | 16.43 | 5.36 |
| HONG KONG | HK | 213 | 2.17 | 0 | 1 | 0 | -5.56 | -1.34 |
| HUNGARY | HU | 8 | 0.08 | 1 | 0 | 0 | 13.61 | 5.32 |
| INDIA | IN | 10 | 0.10 | 0 | 1 | 0 | 12.97 | 10.36 |
| INDONESIA | ID | 14 | 0.14 | 1 | 0 | 0 | 21.97 | 3.57 |
| IRELAND | IE | 36 | 0.37 | 0 | 1 | 0 | -2.38 | -4.44 |
| ISRAEL | IL | 27 | 0.28 | 0 | 1 | 0 | -9.02 | -4.64 |
| ITALY | IT | 115 | 1.17 | 1 | 0 | 0 | 7.04 | 1.92 |
| JAPAN | JP | 140 | 1.43 | 0 | 0 | 1 | 1.39 | 1.70 |
| KOREA, REP. OF | KR | 11 | 0.11 | 0 | 0 | 1 | 17.09 | 0.69 |
| KUWAIT | KW | 4 | 0.04 | 0 | 0 | 1 | 12.28 | 6.94 |
| LUXEMBOURG | LU | 4 | 0.04 | 1 | 0 | 0 | 21.72 | 1.01 |
| MALAYSIA | MY | 362 | 3.69 | 0 | 1 | 0 | -1.06 | 2.37 |
| MEXICO | MX | 116 | 1.18 | 0 | 0 | 1 | 5.77 | 3.10 |
| NETHERLANDS | NL | 123 | 1.25 | 1 | 0 | 0 | 9.53 | 3.63 |
| NEW ZEALAND | NZ | 7 | 0.07 | 0 | 1 | 0 | 17.12 | 10.95 |
| NORWAY | NO | 74 | 0.75 | 0 | 0 | 1 | -7.91 | -2.71 |
| PAKISTAN | PK | 5 | 0.05 | 0 | 1 | 0 | 3.43 | 2.92 |
| PERU | PE | 12 | 0.12 | 1 | 0 | 0 | 7.66 | 5.43 |
| PHILIPPINES | PH | 92 | 0.94 | 0 | 0 | 1 | -12.77 | -1.35 |
| POLAND | PL | 7 | 0.07 | 1 | 0 | 0 | 5.28 | 1.01 |
| PORTUGAL | PT | 13 | 0.13 | 1 | 0 | 0 | 4.86 | 1.19 |
| RUSSIAN FEDERATION | RU | 12 | 0.12 | 1 | 0 | 0 | 22.59 | 12.34 |
| SINGAPORE | SG | 176 | 1.79 | 0 | 1 | 0 | -2.46 | -0.96 |
| SOUTH AFRICA | ZA | 68 | 0.69 | 0 | 0 | 1 | 11.14 | 7.38 |
| SPAIN | ES | 82 | 0.84 | 1 | 0 | 0 | 18.43 | 5.67 |
| SWEDEN | SE | 180 | 1.83 | 1 | 0 | 0 | -18.47 | -11.23 |
| SWITZERLAND | CH | 156 | 1.59 | 1 | 0 | 0 | -0.62 | -1.75 |
| TAIWAN | TW | 53 | 0.54 | 1 | 0 | 0 | 2.07 | 0.98 |

| | | | | | | | | |
|----------------|----|------|--------|----|----|----|--------|-------|
| THAILAND | TH | 167 | 1.70 | 0 | 0 | 1 | 4.68 | 5.26 |
| TURKEY | TR | 6 | 0.06 | 1 | 0 | 0 | -42.27 | 6.21 |
| UNITED KINGDOM | GB | 648 | 6.60 | 0 | 1 | 0 | -7.67 | -7.40 |
| UNITED STATES | US | 3670 | 37.38 | 0 | 1 | 0 | -15.23 | -9.10 |
| TOTAL (N=52) | | 9817 | 100.00 | 27 | 14 | 11 | -6.17 | -3.91 |

Count is the number of firms is in the sample for each of the countries and % is the percentage of the total number of firms for each country. The legal system categorisation is obtained from the CIA, The World Fact Book, as at June 2004 (<http://www.cia.gov/cia/publications/factbook/fields/2100.html>). This site provides a commentary on the legal systems of various countries throughout the world with references to civil law or European law, English or common law and to mixtures such as mixtures of civil and common law and mixtures of Islamic and other legal systems. The dummy variables listed above provide a break up based on these three broad classifications, civil, common and mixed. The R_SHF column provides the average return on shareholders funds and the R_TA column provides the average return on total assets for the year ended in 2001 for each of the countries in the sample.

Table 3, Industry Division SIC Codes

| SIC Div | Major groups | Description (allocated code) | N | % | R_SHF | R_TA |
|---------|--------------|--|------|--------|--------|--------|
| A | 01 to 09 | Agriculture, Forestry and Fishing (da) | 91 | 0.93 | 6.56 | 3.85 |
| B | 10 to 14 | Mining (db) | 510 | 5.20 | -7.85 | -4.61 |
| C | 15 to 17 | Construction (dc) | 199 | 2.03 | 11.82 | 3.81 |
| D | 20 to 39 | Manufacturing (dd) | 4081 | 41.57 | -5.94 | -3.36 |
| E | 40 to 49 | Transportation, Communications, Electric, Gas and Sanitary Service (de) | 947 | 9.65 | -6.50 | -2.60 |
| F | 50 to 51 | Wholesale Trade (df) | 391 | 3.98 | -0.66 | -0.98 |
| G | 52 to 59 | Retail Trade (dg) | 329 | 3.35 | -1.33 | -0.26 |
| H | 60 to 67 | Finance Insurance and Real Estate (dh) | 1755 | 17.88 | 2.48 | -0.76 |
| I | 70 to 89 | Services (di) | 1503 | 15.31 | -21.98 | -12.81 |
| J | 91 to 98 | Public Administration (dj) | 7 | 0.07 | 39.84 | 6.87 |
| K | 99 | Non-classifiable establishments (dk) | 4 | 0.04 | -5.42 | -1.53 |
| Total | | | 9817 | 100.00 | -6.17 | -3.91 |

The industry division SIC codes are obtained from the US Department of Labor web site. (http://www.osha.gov/pls/imis/sic_manual.html). N is the number of firms observed in the industry and % is the percentage of the number of firms observed in the industry relative to the total sample. The R_SHF column provides the average return on shareholders funds and the R_TA column provides the average return on total assets for the year ended in 2001 for each of the countries in the sample.

Table 4, Number and Stability of the Officer and Director Group: The Impact of Prior Period Performance

| Dependent Variable Column (1) | PERCCHGN | | | CONTINPC | | |
|----------------------------------|--------------------|---------------------------------|---------------------|---------------------|---------------------------------|---------------------|
| | All firms (2) | All firms profit/loss (3) | ex USA (4) | All firms (5) | All firms profit/loss (6) | ex USA (7) |
| Constant | -1.7324 (-0.75) | -1.7277 (-0.74) | -2.4450 (-0.73) | 83.1442* (58.66) | 83.5319* (58.94) | 56.1702* (29.53) |
| R_SHF | 0.0155* (2.39) | 0.0139+ (1.73) | 0.0168 (1.41) | 0.0352* (7.87) | 0.0399* (7.31) | 0.0216* (3.05) |
| R_SHFxPOS | | 0.0087 (0.42) | | | -0.0241 (-1.60) | |
| LBVA | 0.0741 (0.43) | 0.0703 (0.41) | 0.4572+ (1.72) | 0.0387 (0.35) | 0.0207 (0.19) | 0.2074 (1.38) |
| LVG | -0.0236 (-1.55) | -0.0256 (-1.61) | -0.0406+ (-1.66) | -0.0117 (-1.21) | -0.0082 (-0.82) | -0.0596* (-4.44) |
| DIVERS | 0.7117 (0.96) | 0.7151 (0.96) | 0.2824 (0.24) | -0.0058 (-0.01) | 0.0094 (0.02) | -0.6496 (-0.94) |
| OA | 2.4634* (2.59) | 2.4715* (2.60) | 4.0367* (2.92) | -0.3640 (-0.61) | -0.3786 (-0.63) | 0.1398 (0.18) |
| OB | 1.4860 (1.48) | 1.4893 (1.49) | 2.4177+ (1.90) | -1.3547* (-2.10) | -1.3635* (-2.12) | -0.9082 (-1.19) |
| OU | 2.6015 (1.61) | 2.6013 (1.60) | 3.8751* (2.19) | 0.4420 (0.44) | 0.4286 (0.42) | 0.7082 (0.67) |
| Industry Dummies | yes | yes | yes | yes | yes | yes |
| Country Dummies | yes | yes | yes | yes | yes | yes |
| R-squared | 0.20 | 0.20 | 0.20 | 0.24 | 0.24 | 0.30 |
| F-statistic | 35.13* | 34.61* | 23.07* | 46.19* | 45.59* | 39.45* |
| Prob(F-statistic) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| N | 9817 | 9808 | 6147 | 9817 | 9808 | 6147 |

PERCCHGN is the percentage change in the number of officers and directors over the period from 2001 to 2002. CONTINPC is the number of the officers and directors who are with the company in both 2001 and 2002 expressed as a percentage of the total number of officers and directors in 200. R_SHF is the ratio of profit before tax to shareholders funds, R_TA is the ratio of profit before tax to total assets, LBVA is the natural log of the book value of total assets, LVG is the ratio of total liabilities to total assets, OA, OB and OU are the OSIRIS independence indicators (see Appendix), DIVERS is the measure of diversification based on the division level SIC code with a value of one if there is a secondary SIC code different from the primary SIC division code and zero otherwise, N is the number of observations in the analysis. Each regression includes a full set of country dummy variables (excluding USA for the full data set and excluding China for the ex USA data set) and industry dummy variables (exclude industry D, see table 1 for the SIC code definitions). The dummy variable parameters for industry and for country are not reported separately. Numbers in parentheses are t-statistics calculated using White heteroscedasticity-consistent standard errors. * (+) statistically significant at the 5%(10%) level of significance.

Table 5, Number and Stability of the Officer and Director Group: The Impact of Prior Period Performance Given Legal Environment

| Dependent Variable Column (1) | PERCCHGN | | CONTINPC | |
|----------------------------------|---------------------|---------------------|---------------------|---------------------|
| | All firms (2) | Ex USA (3) | All firms (4) | Ex USA (5) |
| Constant | 3.8825 (1.41) | -9.9319* (-2.11) | 83.8521* (46.65) | 60.4137* (23.09) |
| R_SHF | 0.0181* (2.92) | 0.0220+ (1.67) | 0.0443* (8.55) | 0.0426* (3.78) |
| R_SHF*CIVIL | 0.0015 (0.07) | -0.0006 (-0.03) | -0.0426* (-3.78) | -0.0395* (-2.62) |
| R_SHF*MIXED | -0.0757 (-1.38) | -0.0785 (-1.40) | -0.0331* (-2.05) | -0.0304 (-1.60) |
| LBVA | -0.1615 (-0.81) | 0.2875 (0.60) | -0.0981 (-0.72) | 0.0752 (0.29) |
| LBVA*CIVIL | 1.2610* (2.83) | 0.9055 (1.45) | -0.0634 (-0.25) | -0.2042 (-0.61) |
| LBVA*MIXED | -0.6828 (-1.46) | -1.2033+ (-1.89) | 1.3163* (3.59) | 1.1379* (2.67) |
| LVG | -0.0011 (-0.07) | -0.0151 (-0.43) | 0.0127 (1.07) | -0.0552* (-2.46) |
| LVG*CIVIL | -0.0904* (-2.22) | -0.0666 (-1.26) | -0.0771* (-3.46) | -0.0074 (-0.25) |
| LVG*MIXED | -0.0450 (-0.74) | -0.0213 (-0.31) | -0.0592+ (-1.88) | 0.0100 (0.27) |
| DIVERS | 0.6342 (0.72) | -0.7894 (-0.32) | 0.2202 (0.39) | -1.0775 (-0.81) |
| DIVERS*CIVIL | -0.0824 (-0.05) | 1.3130 (0.46) | -0.0964 (-0.10) | 1.3038 (0.83) |
| DIVERS*MIXED | 1.4108 (0.35) | 2.7268 (0.59) | -3.6802 (-1.55) | -2.3988 (-0.90) |
| OA | -1.6248 (-1.28) | -1.8890 (-0.66) | -0.6112 (-0.72) | 1.5054 (0.92) |
| OA*CIVIL | 7.2461* (3.36) | 7.3649* (2.20) | -0.3153 (-0.25) | -2.5003 (-1.32) |
| OA*MIXED | 12.5472* (2.31) | 12.8141* (2.13) | 3.7035 (1.37) | 1.6276 (0.54) |
| OB | -2.9850+ (-1.97) | -3.9052 (-1.19) | -1.4710 (-1.45) | 1.1808 (0.65) |
| OB*CIVIL | 6.1563* (3.00) | 6.8698+ (1.93) | -0.1146 (-0.09) | -2.8447 (-1.40) |
| OB*MIXED | 17.6022* (2.90) | 18.4291* (2.73) | 0.4914 (0.16) | -2.1419 (-0.64) |
| OU | -0.6080 (-0.26) | -0.2003 (-0.06) | -0.6507 (-0.47) | 1.0211 (0.59) |
| OU*CIVIL | 9.1477* (2.21) | 8.7298+ (1.87) | 4.7441 (1.64) | 3.0916 (1.01) |
| OU*MIXED | 4.0701 (0.93) | 3.3108 (0.68) | 1.9770 (0.77) | 0.3541 (0.13) |

| Dependent Variable | PERCCHGN | | CONTINPC | |
|--------------------|-----------|--------|-----------|--------|
| | All firms | Ex USA | All firms | Ex USA |
| Industry Dummies | yes | yes | yes | yes |
| Country Dummies | yes | yes | yes | yes |
| R-squared | 0.20 | 0.21 | 0.25 | 0.31 |
| F-statistic | 29.87 | 19.51 | 39.34 | 33.20 |
| Prob(F-statistic) | 0.00 | 0.00 | 0.00 | 0.00 |
| N | 9817 | 6147 | 9817 | 6147 |

PERCCHGN is the percentage change in the number of officers and directors over the period from 2001 to 2002. CONTINPC is the number of the officers and directors who are with the company in both 2001 and 2002 expressed as a percentage of the total number of officers and directors in 200. R_SHF is the ratio of profit before tax to shareholders funds, R_TA is the ratio of profit before tax to total assets, LBVA is the natural log of the book value of total assets, LVG is the ratio of total liabilities to total assets, OA, OB and OU are the OSIRIS independence indicators (see Appendix), DIVERS is the measure of diversification based on the division level SIC code with a value of one if there is a secondary SIC code different from the primary SIC division code and zero otherwise, N is the number of observations in the analysis. * CIVIL and * MIXED identify interaction terms between the variable preceding the term and the legal system dummy variable for the CIVIL or for the MIXED legal system. Each regression includes a full set of country dummy variables (excluding USA for the full data set and excluding China for the ex USA data set) and industry dummy variables (exclude industry D, see table 1 for the SIC code definitions). The dummy variable parameters for industry and for country are not reported separately. Numbers in parentheses are t-statistics calculated using White heteroscedasticity-consistent standard errors. * (+) statistically significant at the 5%(10%) level of significance.