

# From Fiction to Fact: The Impact of CEO Networking

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December 2006

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## Abstract

This paper investigates the role of CEO networking in the UK market. We use a unique measure of CEO ties, devised by BoardEx database, which takes into account the cumulative number of direct ties developed by a CEO during her corporate lifetime. We find that the size of a network is not randomly determined, as assumed in previous studies. Instead, it is highly dependant on the industry and CEO previous employment (career path). We also argue that fundamental corporate governance recommendations, i.e. board independence and CEO/Chairman duality, have either counterproductive or no effect whatsoever to CEO networking. We argue that our results cast some doubts on the effectiveness of these recommendations.

Finally, we provide evidence that CEO networking has negative impact on firm accounting performance. Our results are robust to different specifications. It appears that the managerial power approach advanced by Bebchuck *et al.* (2002) is supported by our data. The CEOs appear to use their power developed through their connections not to the benefit of their shareholders.

*Keywords:* CEOs, boards of directors, connections, accounting performance.

## 1. Introduction

A Chief Executive Officer (CEO) is considered the figurehead of a company with dispersed ownership. Her power and significance stems from the separation between ownership and control and is highlighted in the extensive literature on agency problems. Special attention is paid to the recruitment, incentivisation and retention of the appropriate candidate. Therefore is unsurprising that a lot of consideration has been put in defining and developing the CEO role within the UK corporate governance system. Reports such as the Cadbury (1992), Greenbury (1995) and the Combined Code (2003) have partially focused in establishing best practice for CEOs, i.e. from the length of the contract to communication with owners and remuneration packages. Academic research has followed closely, producing numerous papers on CEO characteristics and practices.

Academic papers have mainly focused on the effect of ownership structure to performance (see Holderness, 2003 for a review of the relevant literature), the effectiveness of boards of directors (see Hermalin and Weisbach, 2003 and Denis and McConnell, 2003 for reviews) and executive compensation (see reviews by Murphy, 1999 and Core *et al.*, 2003). While studying these corporate governance mechanisms researchers have controlled for specific CEO characteristics such as experience (Murphy, 1986), education (Palia, 2000) and age (Gibbons and Murphy, 1992). Palia (2001) finds that all these parameters are important in explaining different corporate governance mechanisms and in particular executive compensation practices.

It is only recently though that researchers have started paying attention at another important CEO characteristic, namely social networking. Corporate Governance literature has borrowed techniques from sociology to examine whether the interlocking effect between boards of directors has any impact on corporate governance practices and structures. Davis *et al.* (2003) after studying the board-to-board ties for a large panel of US companies find evidence of extensive networks. They conclude that there is a small world effect, another term borrowed from sociology, resilient to changes in corporate governance and characterised by remarkably stable connectivity of the network. They reaffirm previous research concluding that networks affect corporate structure and practices (Davis and Greve, 1997; Rao *et al.*, 2000). In addition, Barnea and Guedj

(2006) find that firms with more connected board members offer significantly higher CEO compensation, whereas Fich (2005) argues that networks/connections are related to the CEO appointment. In the UK, two recent papers by Conyon and Muldoon (2006a,b) confirm that the small world phenomenon exists but only in the sense that ties are more clustered than expected. Conyon and Muldoon (2006b) find that the UK world of ownership and control is small; boards tend to be connected to other boards by a share director more frequently than one would observe by chance.

This paper is based on the above research on networking. It examines the relationship between CEO networking, corporate governance and accounting performance. It extends the current literature in the following ways:

First, it utilises a better measure of networking. Our measure is empirically calculated and is not dependant upon theoretically estimated benchmarks, i.e. random or bipartite graphs (Robins and Alexander, 2004). In addition, it is a dynamic measure taking into account the cumulative number of direct connections the CEO has created during her corporate life. That involves calculating the total number of directors from all the boards the CEO has sat in during her lifetime. This is in stark contrast to previous static<sup>1</sup> measures used in the literature. Furthermore, it is based at the CEO level and not firm level, as in Barnea and Guedj (2006); the latter has the potential to overemphasise the networking effect since it calculates (and treats equally) ties of any member of the board, executive and non-executive, to the boards of other companies. In Barnea and Guedj (2006) the binary “links” variable takes the value of one for any tie of any member of the board to other firms. In our paper we use a more refined approach and concentrate only on the impact of the CEO networking. This also allows us to measure direct ties but not indirect ones, i.e. ties that *might* have developed through a third director serving on both boards<sup>2</sup>. This deals with the “path-length” issues raised in the small world literature and some of the above mentioned research, e.g. Conyon and Muldoon (2006a,b).

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<sup>1</sup> Some of the previous attempts to measure networking involved measuring each year separately the number of directorships (i.e. the number of boards the director sits in and not the number of other board members she sits with) held by a board member (Fich and Shivdasani, 2006).

<sup>2</sup> Researchers have frequently allowed for this type of indirect networks into empirical studies. In this case two directors A and B from different boards are considered connected just because another director C sits on the boards of both A and B. Whether A and B actually know each other, which will allow them to exchange information, know-how etc, is not examined by this measure.

Second, it investigates the relationship between networking, corporate governance and performance on a contemporary UK sample. This allows controlling for out of sample bias for the published studies based on US data. It also examines contemporary practices realised after the publication of important reports and codes of practice, such as the revised Combined Code (2003) and Higgs Report (2003). A common theme in both these influential reports is the attention to the classification of an outside director, i.e. grey, independent etc. This by definition takes into account the networking of outside directors; both reports though inexplicably ignore CEO networking. As our results indicate there is scope to revisit and rectify this gap.

Third, we test the influence of career paths to CEO networking. In particular, we examine whether the previous employment of the CEO has any effect to the number of ties she can develop during her career. This is important since most of the previous research uses the cross-section as a unified environment, where networks can randomly develop. We illustrate that important industry effects have to be taken into account.

This paper is organised as follows: Next section briefly reviews the literature on social networks and their relationship to corporate governance. Section 3 describes the methodology and data used in this study. Section 4 presents the results. Section 5 concludes.

## 2. Previous Research

This paper builds on the literature on social networks. As mentioned before it is only recently that financial economists have attempted to borrow the existing sociology literature to explain corporate governance phenomena. This research direction can be classified into two streams. The first investigates whether social networks and in particular the small world characteristics exist in corporate governance (Devis *et al.*, 2003; Conyon and Muldoon, 2006a,b). The second examines whether networking affects corporate structures and governance (Fich, 2005; Barnea and Guedj, 2006). Even though in this section we briefly present both research streams, we explicitly state that this paper contributes to the latter one.

All the recent evidence points to the direction of a strong social network in existence between boards of directors. Devis *et al.* (2003) study the structure of the corporate elite network in the US during the 1980s and 1990s. They concentrate on the degree of clustering, the length of the paths connecting any given directors as well as the stability of the observed network. Path-length is defined as the number of directors (boards) required to create a link between two directors (firms); in the case of the example described in footnote 2 the path-length between A and B is 2. Clustering is ‘the proportion of possible ties among alters that are realised’ (p. 316). Network stability is defined as the degree of change of the observed path-length and clustering over the years. Devis *et al.* find high degree of clustering, short average path-lengths (both indications of a small world phenomenon) and remarkable stability of the network over the years they study. They also conclude that the network appears to be universal, that is affecting the whole cross-section, and is not altered by the elimination of important market “players”, such as bankers. Robins and Alexander (2004) use “affiliation” networks (networks that count boards as distinct social entities, therefore allowing for at least two distinct types of social entities, i.e. individuals and boards). These more complex types of networks are represented by bipartite graphs. The authors, using 1996 data from Australia and the US, calculate bipartite graphs and then compare them to a distribution of randomly generated bipartite graphs they simulate to enable the comparison. They find that the small world effect ‘is shaped more by decisions by some (not all) company boards to appoint moderate to high numbers of interlockers as directors, rather than by certain interlockers seeking to be on unusually large numbers of boards’ (p. 84). In other words, they find different outcomes for the company-to-company and director-to director networks, with more evidence of small world characteristics in the former rather than the latter network. Finally, Conyon and Muldoon (2006a) examine large samples of boards and directors for 3 economies, namely US, UK and German. Unlike Devis *et al.* (2003), they also examine the number of boards on which a typical director is a member. In addition, they use the Newman *et al.* (2001) approach to derive the theoretically expected values, which they compare to their small world statistics without having to generate random graphs. They conclude that even though small world exists between boards of directors it is not more “clubby” than expected. In other words, there is no more systematic structure, no stronger

tendency towards ‘smallness’, than one should expect to find by chance (p. 21). Other attempts to study the existence of networks in a corporate governance context include Conyon and Muldoon (2006b), Baum *et al.* (2003) and Kogut and Walker (2001).

We now turn our attention to the second research stream, which investigates the influence of networks on corporate structures and governance. Even though it is richer than the social network one, it still remains at a developing stage. Hallock (1997) finds that the pay of US CEOs who sit in interlocked boards is higher on average than the pay of CEOs who are not in interlocked boards. He also reports high levels of interlocking for his sample of large US firms; the interlocked firms range from 8% to 20% of the total sample depending on the definition of interlocks. Fich and White (2003), again on US data, find that interlocking between boards tends to increase CEO compensation and decrease CEO turnover. They interpret their results as a consequence of entrenchment. They fail though to establish a significant relation between directors’ interlocking and firm performance. Fich and Shivdasani (2006) using a different measure of networking, namely the number of directorships held by outside directors, find that busy boards are associated with weak corporate governance and low sensitivity of CEO turnover to firm performance. In particular, they report insignificant differences in the CEO turnover sensitivity between busy and insider dominated boards. They also present though a negative and significant relationship between firm accounting performance and the existence of busy outside directors. Barnea and Guedj (2006) find a strong positive relation between connected boards and CEO compensation, even after controlling for observed and unobserved firm and CEO characteristics (i.e. geographic location of the firm; interlocked, busy and entrenched boards; different governance measures, etc). It should be mentioned that there are few studies that have attempted but failed to find a relationship between directors’ interlocking and CEO total compensation (e.g. Core *et al.*, 1999). In addition, several studies using independent directors as a proxy of governance have failed to establish a relation with firm performance (for a review see Hermalin and Weisbach, 2003).

The above literature is based on US data. The only study on non-US data we are aware of is by Kramarz and Thesmar (2006). They use French data and empirically prove that social networks affect both the board composition and corporate governance policies

of their sampled firms. In particular, they find that companies where the CEO is a well connected former civil servant / bureaucrat have worse accounting performance. These companies also have lower sensitivity between CEO turnover and performance.

This paper helps to fill the vacuum on non-US evidence on the effect of networking. As far as we are aware this is the first attempt to explicitly test the impact of CEO networking on corporate governance and accounting performance on a UK sample. We also expand the above mentioned US studies by devising a dynamic measure of direct CEO ties, which depicts more accurately the cross-sectional variation of the personal networks of each CEO in our sample. This is better than the proxies that have been used in the literature, i.e. interlocking and busy boards. We also find the determinants of the observed networking, its impact on accounting performance and its dependence to career paths (i.e. industry effects).

### 3. Methodology and Data

This section presents our research question and hypotheses, the methodology and variables used, as well as the data at which we base our study.

#### Hypotheses & Methodology

CEO networking can have both a positive and negative effect on a company. On the positive side it increases information dissemination between CEOs and allows quick transfer of know-how and best practices between interlocked/connected companies. In general, it improves information flow and therefore has the potential to enhance the quality of decision making within a firm. On the same positive note, if the CEO is willing to use her ties for the benefit of the company's shareholders then there might be a significant improvement in the value of the company. Agrawal and Knoeber (2001) illustrate how politically connected directors can help their companies attract government contracts.

In contrast, there is a significant number of studies arguing that networking has negative impact on a company. This argument is based on the premise that information asymmetry is used by directors to pursue their own wealth maximisation objectives,

which are not necessarily in line with the objective of shareholders' wealth maximisation. Bebchuck *et al.* (2002) argue that managers use their connections to increase entrenchment and board dependence to them, which will allow them to extract rents, i.e. excessive pay. The vast majority of the research mentioned above appears to follow the same theoretical rationale and finds pretty conclusive results, namely that there is a negative relation between their measures of networking, i.e. interlocks or directorships, and corporate governance quality (presented either as excessive CEO pay or insensitive CEO turnover to performance; see the literature review section above).

We follow the same direction and hypothesise that CEO networking is negatively related to good corporate governance practices. We also predict a negative relation between networking and accounting performance. Therefore, our two hypotheses are as follows:

H1: Highly connected CEOs are employed by companies with weak corporate governance regimes. Therefore there should be a negative relationship between our measure of CEO networks and the indicators of strong governance we utilise in this study.

H2: Firms that have highly connected CEOs demonstrate poor accounting performance. In other words, there is a negative relation between the measures of accounting performance we employ and our measure of CEO networking.

We first use a descriptive approach to examine the extent and structure of CEO networks in the UK market. We are especially interested in identifying industry and size effects, which will give us more insights into the way these networks are developed. In order to test the first hypothesis (H1) we run linear OLS regressions; the dependent variable is our measure of CEO networking and the independent ones consist of corporate governance quality indicators and other firm specific characteristics that the literature has identified as important determinants. Therefore the two models used are as follows:

$$NW = \alpha_1 + \beta_1' CG + \gamma_1' CC + \varepsilon \quad (1)$$

&

$$NW = \alpha_2 + \beta_2' CP + \gamma_2' CG + \delta_2' CC + \varepsilon \quad (2)$$

where NW is our measure of CEO networking; CG is a vector of corporate governance variables including CEO tenure, size of the board of directors, independence of the board and CEO/Chairman duality; CC is a vector of firm specific variables including FTSE index membership, size, leverage and growth opportunities. The variable CP that appears independently in the second model is our proxy of career paths, i.e. within industry previous employment.

So as to test our second hypothesis we utilise two different methodologies as well as different performance time scales. We initiate our analysis by using linear OLS regressions on the contemporaneous relationship between performance and networking. Therefore the initial model is:

$$Perf. = \alpha_3 + \beta_3' NW + \gamma_3' CG + \delta_3' CC + \varepsilon \quad (3)$$

where Perf. is the contemporaneous performance measured by the return on equity (ROE) and return on assets (ROA). Everything else is defined as in model 1. Even though model 3 is simple to construct is conceptually weak for two reasons. First, we have already presented the reasons why we predict a significant relation between networking and corporate governance. This consequently means that our NW variable is conditioned on the CG vector; treating therefore these variables as independent contradicts models 1 and 2. Second, there is an endogeneity issue between firm performance and networking that cannot be resolved in the context of model 3. In particular, by using model 3 we only assume the real direction of causality between our measure of networking and the accounting performance variables we utilise. Even though we predict that networking drives performance, there is also the argument that performance can change networking. Fich (2005) find that CEOs are more likely to obtain outside directorships when the companies they head perform well. The same “inverse” relationship is also tested as a robustness check in Fich and Shivdasani (2006).

We present two methodological solutions to deal with these problems. The first is theoretically robust and deals with both issues mentioned above. We create a system of equations and run a two stage least square regression, of the following arrangement:

$$NW = a_4 + \beta_4 Perf. + \gamma_4' CG + \delta_4' CC + \varepsilon \quad (4.1)$$

$$Perf. = a_5 + \beta_5 NW + \gamma_5' CC + \varepsilon \quad (4.2)$$

Model 4.1 is the equivalent of model 1 but with performance as an added independent variable to control for the inverse relationship. In model 4.2 we use the fitted values of NW to test the relation between networking and performance.

An alternative way to deal with the endogeneity problem is to use long term, instead of contemporaneous, performance. In this case we use five year average past performance, which coincides with the average CEO tenure in our sample. Therefore the model becomes:

$$Perf\_5y = a_6 + \beta_6 NW + \gamma_6' CG + \delta_6' CC + \varepsilon \quad (5)$$

We can now more confidently point firm specific accounting performance to the particular CEO and at the same time reduce the probability of picking the effect of increased networking because of contemporary performance.<sup>3</sup>

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<sup>3</sup> Our measure of networking is a cumulative one, calculating the direct ties developed by the CEO over her corporate lifetime. Therefore, 5 years of connections will only have a marginal effect on the overall number. At the same time using 5 years of performance establishes a more accurate measure, especially since it matches the average CEO tenure. As a result we believe that the benefits of using these performance measures outweigh possible drawbacks.

### *Data & Variables*

We use BoardEx database as the source of networking and corporate governance information. We gather information for a comprehensive cross-section of companies listed in the London Stock Exchange (LSE). We examine the constituents of two indices, namely FTSE-250 and FTSE-Small Cap, for 2005. The total number of companies, which were members of these two indices in 2005, is 582; BoardEx covers all FTSE-250 companies but only 227 (out of 332) FTSE-Small Cap, a total of 477. We follow common practice in the corporate governance literature and exclude financial firms. This gives us a final sample of 363 firms. Among them they accumulated £204 billions in terms of market value at the end of December 2005.

The CEO networking variable is collected directly from BoardEx. It is a cumulative one, measuring the total number of directors the CEO has sat with in boards throughout her corporate lifetime. It calculates direct ties created through all CEO appointments, i.e. both executive and non-executive. The fact that the main variable of interest is a cumulative one allows us to restrict our investigation to a one year cross-section. Year to year changes are only marginal therefore using panel data is of limited value, since there is no significant time series variation in the dependent variable. Studying instead a recent cross-section, yields more interesting observations.

BoardEx also provides information on previous employment for all the CEOs in the sample. We use this to construct a career path, or industry dependence, variable, which will help us further investigate the nature of the networks. The career path variable is a binary one, getting the value of one (zero) if the previous employment of the CEO was in a firm in the same (different) industry. By previous employment we mean any type, e.g. executive, managerial, rank and file employee, apart from non-executive director. We exclude the non-executive director type of employment because such type does not necessarily require, or indeed provide, industry specific knowledge or expertise. Typically, non-executive directors are brought into a company to transfer best practices and know-how from their own experiences/industries, but the opposite does not automatically hold. We predict a negative relation between networking and career path; a CEO that has spent most of her time within an industry will have less chances of creating a large network (number of direct ties).

We also collect corporate governance data from BoardEx. We follow the main Cadbury report (1992) recommendations as our indicators of corporate governance quality. Therefore we collect data on CEO tenure and duality, as well as the size and independence of the board of directors. The Cadbury report (1992) clearly emphasises on the importance of non-executive, independent directors sitting on the boards of UK companies. We collect the data on the ratio of outside to total directors on the board and in line with the report assume that the higher the ratio, the better the corporate governance quality (i.e. more monitoring, less entrenchment). As far as the size of the board is concerned, both the Cadbury report and academic research agree that it can have positive and negative effects on CG quality. A large board can increase monitoring and bring in more know-how and experience; at the same time it increases the chances of directors' free-riding, which automatically diminishes their value and input (see Hermalin and Weisbach, 2003, for a review). As far as networking is concerned though by default there should be a positive relation between the size of the board and our CEO networking variable (a CEO sitting in a large board has more direct ties counted in our measure). In this study the total number of directors sitting on the board (both inside and outside) is used as our measure of board size. CEO tenure is not explicitly dealt with in the Cadbury report. The report though explicitly asks firms to limit the duration of CEO contracts, which invites the shareholders to vote more frequently on retaining the CEO. This has a direct impact on the chances of the CEO losing her contract (by increasing the chances the contract will not be renewed), therefore has an implicit negative effect on CEO tenure. Therefore, since we hypothesise a negative relation between CG quality and networking, there should be a negative relation between CEO networking and tenure. On the other hand, CEO tenure can also be viewed as an indicator of experience and/or entrenchment, which is positively related to CEO ties. Therefore, it is unclear what the predicted sign should be. It should be mention that CEO tenure is measured as the number of years the CEO has retained this position. Finally, CEO/Chairman duality is encouraged in the report; the idea behind this recommendation is that the Chairman ought to monitor the actions of the CEO, which therefore makes necessary a split of roles. The duality variable we employ is a binary one taking the value of one whenever different people hold the CEO and Chairman positions, zero otherwise.

A different source of information is used to retrieve accounting data. Through Thomson Financial Datastream we collect information on accounting performance, size, leverage and growth opportunities. We measure accounting, and not market, returns since, even though they might be subject to managerial manipulation, they still are less noisy and capture more directly the impact of CEO effort (Hambrick and Finkelstein, 1995). Consistent with previous studies, e.g. Core *et al.* (1999), we use return on assets (ROA) and return on equity (ROE).<sup>4</sup> We use the following definitions for ROA and ROE:

$$ROA = (\text{Net Income before Preferred Dividends} + ((\text{Interest Expense on Debt Interest Capitalized}) * (1-\text{Tax Rate}))) / \text{Last Year's Total Assets} * 100 \quad (6)$$

$$ROE = (\text{Net Income before Preferred Dividends} - \text{Preferred Dividend Requirement}) / \text{Last Year's Common Equity} * 100 \quad (7)$$

In addition, we use as a proxy of firm size Total Assets (TA) and of leverage the ratio of Total Debt / Total Equity. We expect networking to be positively related to firm size since bigger firms attract better managerial talent, which in turn “guarantees” more offers of outside directorships from companies who wish to enhance their performance (Fich, 2005). We predict that leverage will be negatively associated with networking; levered firms are more scrutinised by debtors, hence operate under more monitoring. As we expect a negative relationship between networking and both CG quality and performance, these companies will use enhanced monitoring to protect themselves against connected CEOs. Finally, we use as a proxy of growth opportunities the ratio of Market to Book Value (MtB). The relationship between networking and MtB is ambiguous. Companies with high growth opportunities will want to attract managerial talent to materialise the growth potential. As mentioned above managerial talent increases networking. On the other hand, growth companies are typically smaller and younger than value companies. Since we expect a positive relationship between firm size and networking, then a negative relationship between networking and growth opportunities should be expected.

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<sup>4</sup> The Datastream Code for ROA (ROE) is WC08326 (WC08301).

#### 4. Empirical Results

This section presents our empirical results. We first provide descriptive information on our sampled firms and then illustrate the industry variation of CEO networking and career path; this is followed by regression results on the determinants of networking. The section concludes with results on the relationship between accounting firm performance and CEO networking.

The 363 firms in our sample represent 27 different industries. The sector with the highest representation is Services, which accounts for more than 25% of the sample (91 firms between Software & Computer, Support and Telecommunication Services). The next best represented sector is Retailing (just above 9% of the total sample) followed by Construction (7.7%) and Media (7.2%). In contrast, there are 6 industries with very low representation (1 or 2 firms), including Electricity, Forestry & Paper and Utilities among others. The small number of observations in these sectors might help explain some of the outliers we present in Figures 1 and 2 below.

(Insert Table 1 about here)

The average value of the networking variable is 76.98. This indicates that the average CEO in our sample developed 77 direct ties through her corporate life time. The median though is only 35, which points to the existence of outliers in our sample. An interesting reading comes from the comparison of FTSE-250 and FTSE Small Cap companies. The average (median) networking value for FTSE-250 CEOs is 90 (47.5) ties, which is significantly higher than the FTSE Small Cap figures (64 and 21, respectively). This result is unsurprising for two reasons. First, larger firms can attract and afford better managerial talent, which in turn attracts more directorships (see the analysis in the previous section). Second, larger firms have significantly bigger boards. This is confirmed in table 2, where the average board size for FTSE-250 firms is 9.2, which is statistically significantly bigger than the 7.99 for FTSE Small Cap.

As far as career paths are concerned, 78% of the CEOs in our sample were previously employed by a firm within the same industry. The career path variable is not

significantly different for FTSE-250 and FTSE Small Cap companies, which indicates that any variation in this variable is driven by an industry (as seen below) and not size effect. The CEO tenure is higher for the smaller companies in our sample (5.61 years compared to 4.61 years for FTSE-250 firms). This is consistent with the idea of higher mobility between more talented human capital. It is incompatible though with the idea of higher retention rates in bigger firms, where the value of the marginal managerial product is greater. So far as the other corporate governance quality indicators are concerned, both seem to favour bigger, better resourced companies. The means of both the independence of the boards and CEO duality are significantly higher for FTSE-250 firms.

FTSE-250 firms are, by definition, significantly larger in terms of market value; the same conclusion is reached even when comparing by total assets. Surprisingly, one might say, there are no significant differences between the two sub-samples in leverage and market to book ratios. Finally, the average performance of FTSE-250 companies is better, when measured by both ROE and ROA (even though the differences are less pronounced when comparing median values).

The reader should note that for some non-binary variables presented in table 2 there are significant differences between mean – median values. These differences are driven by outliers. Consistent with Aggarwal and Samwick (1999), we transform these variables in our regression tests using the cumulative distribution function (CDF).<sup>5</sup>

(Insert Table 2 about here)

We now turn our attention to the industry variation of CEO networking and career path. As seen in Figure 2, there is substantial variation in CEO networking. The picture depicted is consistent with the argument that more specialised sectors have less connected CEOs. Indeed, we observe median values below the overall sample median for industries such as Chemicals, Electronic & Electrical Equipment, Health, Oil & Gas and Pharmaceuticals. In contrast, Automobiles & Parts, Leisure & Hotels, Telecommunication Services and Transport appear clearly above median. It should be

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<sup>5</sup> The CDF is obtained by ranking the observations in ascending order, based on the value of the variable, from 1 to the sample size, subtracting 1, and dividing by the sample size minus 1.

mentioned though that some industries do not fit this argument. For example, even though Aerospace & Defence and IT Hardware are causally classified as specialised sectors, they appear to have above median networking. Finally, the interpretation of the results for industries such as Electricity, Personal Care & Household and Utilities is hampered by the lack of observations.

(Insert Figure 1 about here)

The career path variable also has industry variation. Even after excluding Forestry & Paper, Personal Care & Household and Utilities (due to lack of observations), we observe substantial differences across sectors. The picture depicted in Figure 2 is partially the opposite of that in Figure 1, which leads us to believe that there is a degree of negative correlation between networking and career path. In particular, specialised sectors like Chemicals, Oil & Gas and Pharmaceuticals & Biotechnology have average career path values above the overall sample mean. In contrast, Automobiles & Parts, Construction, Engineering & Machinery and Transport have below average values. It should be mentioned that the IT Hardware sector now appears to have above average career paths; this is consistent with the idea that in specialised sectors CEO recruiting is done from within the industry.

(Insert Figure 2 about here)

Before turning our attention to the networking determinants analysis, we report the correlation coefficients for all variables. The correlation coefficient between networking and career path is -22%. Also the board size is positively correlated to firm size (around 40%, depending on the firm size measure). In addition, as expected, the two firm size measures are significantly correlated (80%) that is why we do not use them together in the same regression model. Apart from this all other correlation coefficients appear below the statistically significant thresholds.

(Insert Table 3 about here)

Table 4 presents our results on the CEO networking determinants. The first model is the base one, whereas the second also controls for CEO career paths. As expected there is a negative and significant relation between career path and networking. This confirms that CEOs who have built their careers within a particular industry have less chances of creating a big network. Therefore the size of the network is not randomly determined, as is induced in some papers coming from the social networks literature, but is dependent on industry and career progression factors.

Unsurprisingly and probably because of the trade-off between experience and corporate governance recommendations (as explained in the data section above), the CEO tenure variable has no significant impact on networking. This is not the case though for the other two corporate governance quality indicators, namely the size and independence of the board, which appear to be both positive and highly significant. Even though we expect board size to be positively related to networking, it is counterintuitive and goes against the logic behind the CG recommendations that board independence is positively related to networking. This can only be explained in the context of Bebchuck *et al.* (2002) managerial power approach, which argues that outside directors are not truly independent of the CEO since they are employed and remunerated by her. Our result reinforces the perception that well connected CEOs use their ties to bring into their boards obedient “independent” directors. It also casts doubts on the effectiveness of the definition of independence.<sup>6</sup> Another recommendation that appears to be ineffective in controlling CEO networking is the CEO/Chairman duality. Indeed, the coefficient of the duality dummy is insignificant in both models. This indicates that even when the roles of CEO and Chairman are split, the extra monitoring is not sufficient to drive networking down.

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<sup>6</sup> According to the Higgs (2003) report: “A non-executive director is considered independent when the board determines that the director is independent in character and judgement and there are no relationships or circumstances which could affect, or appear to affect, the director’s judgement.” (p. 37)

The relationships are defined as: former employee; having material business relationship with the company; has received or receives additional remuneration from the company; has close family ties with any of the company’s advisers, directors or senior employees; *holds cross-directorships or has significant links with other directors through involvement in other companies or bodies*; represents a significant shareholder; has served on the board for more than ten years.

Even though cross-directorships are mentioned the focus is on current ties. There is no provision to exclude outsiders who held cross-directorships in previous years. So even though such provisions appear in other relationships, i.e. a former employee must wait for 5 years after the contract was terminated to be considered independent, they are ignored for cross-directorships.

The size effect is fully captured by the total assets variable, which justifies the statistical insignificance of the FTSE-250 dummy. As expected bigger firms have CEOs with more direct ties. Also consistent with our prediction is the result on the leverage variable. In particular, there is a significant negative relation, which indicates that CEOs have smaller networks (are less connected) in firms with higher scrutiny/monitoring. Finally, there is a positive and highly significant relationship between CEO networking and firm growth opportunities. This is consistent with the findings of Fich (2005), who argues that firms with growth opportunities want to attract managerial talent, which in turn is positively correlated to networking.

So far we have presented our results on CEO networking variation and determinants. We now turn our attention to the impact of CEO networking to firm performance. We tabulate these results in Table 5. Models 1 and 2 present the OLS regression results on the contemporaneous relationship between networking and firm performance. It appears that there is a negative but insignificant relationship. As explained though in the methodology section of this paper the contemporaneous OLS is very weak to properly explain the association between the two variables. This is because of the endogeneity issue between performance and networking as well as the conditionality of the latter to corporate governance quality. In order to take these two issues into account we run 2SLS regressions (models 3 and 4). The results remain negative but now are highly significant whether performance is measured by ROE or ROA. The same results are reported even when we use long term performance measures to test the relationship (models 5 and 6). Overall, it seems that the results are highly supportive of a negative relationship between CEO networking and firm performance. In other words, we find that well connected CEOs do not use their ties to improve firm performance, i.e. in the interest of their shareholders. On the contrary, the effort they put to build their networks seems to harm the accounting performance of their firms. This result is supportive of the managerial power approach advanced by Bebchuck *et al.* (2002).

## 5. Conclusions

This paper investigates the role of CEO networking in the UK market. It examines the nature and size of the networks developed by UK CEOs, any industry and size effects, as well as their determinants. In addition, it provides evidence on the impact of CEO networking to firm accounting performance.

We use a unique measure of CEO ties, devised by BoardEx database, which takes into account the cumulative number of direct ties developed by a CEO during her corporate lifetime. We find that the size of a network is not randomly determined, as assumed in previous studies. Instead, it is highly dependant on the industry and CEO previous employment (career path). We also argue that fundamental corporate governance recommendations have either counterproductive effect, i.e. board independence, or no effect whatsoever, i.e. CEO/Chairman duality, to CEO networking. We argue that our results cast some doubts on the effectiveness of these recommendations, especially the effectiveness of the definition of an independent director.

Finally, we provide evidence that CEO networking has negative impact on firm accounting performance. Our results are both robust to different specifications and highly statistically significant. It appears that the managerial power approach advanced by Bebchuck *et al.* (2002) is empirically supported in this paper. In other words, the CEOs appear to use their power developed through their connections not in the benefit of their shareholders.

In order to investigate whether there is rent extraction on behalf of the CEOs, the Bebchuck *et al.* (2002) subsequent claim, we need to collect CEO remuneration data. The fact we do not include this into our models is acknowledged as a caveat of this paper. It should be mentioned, that even though it limits our ability to validate the rent extraction argument, it does not weaken our result on the negative impact of CEO networking to firm performance, therefore the managerial power argument.

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Figure 1 CEO Networking per industry

This figure depicts the industry variation of CEO networking. We use median values since the CEO networking variable is skewed. The horizontal axis shows the number of CEO direct ties. The vertical axis crosses the horizontal at the median value of the overall sample (35 ties). The industries depicted on the left (right) of the vertical axis have median values below (above) the overall median.

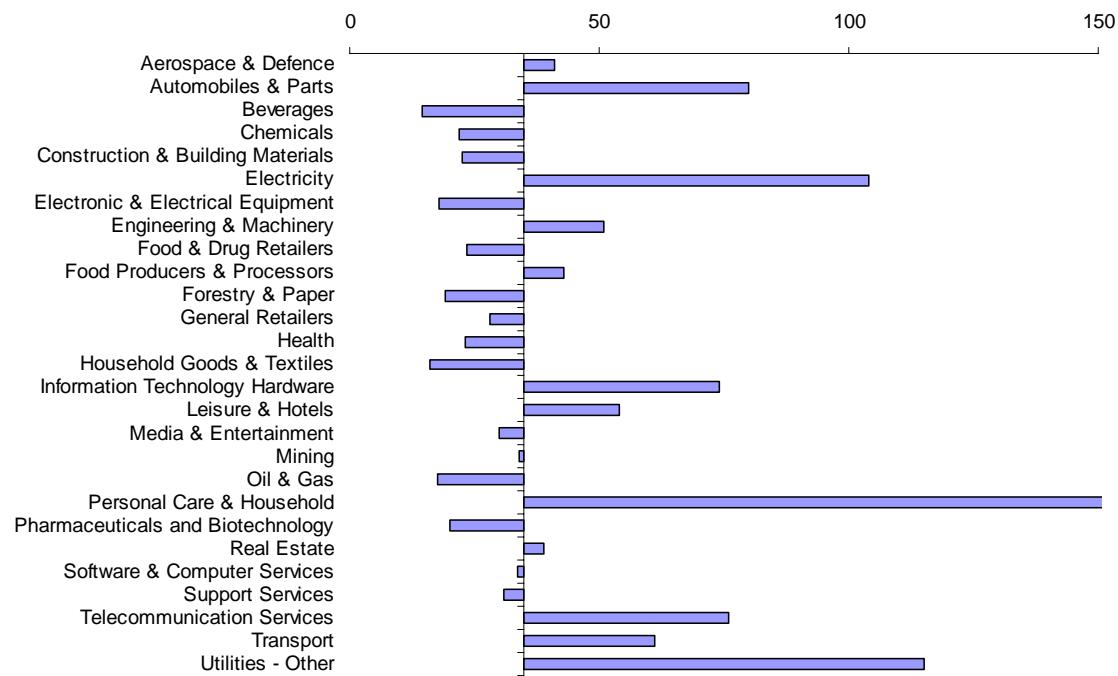


Figure 2 Career Path per industry

This figure depicts the industry variation of CEO Career Paths. We use average values since the CEO Career Path variable is binary one. The horizontal axis shows the average number of CEO career paths. The vertical axis crosses the horizontal at the average value of the overall sample (0.78). The industries depicted on the left (right) of the vertical axis have average values below (above) the overall mean.

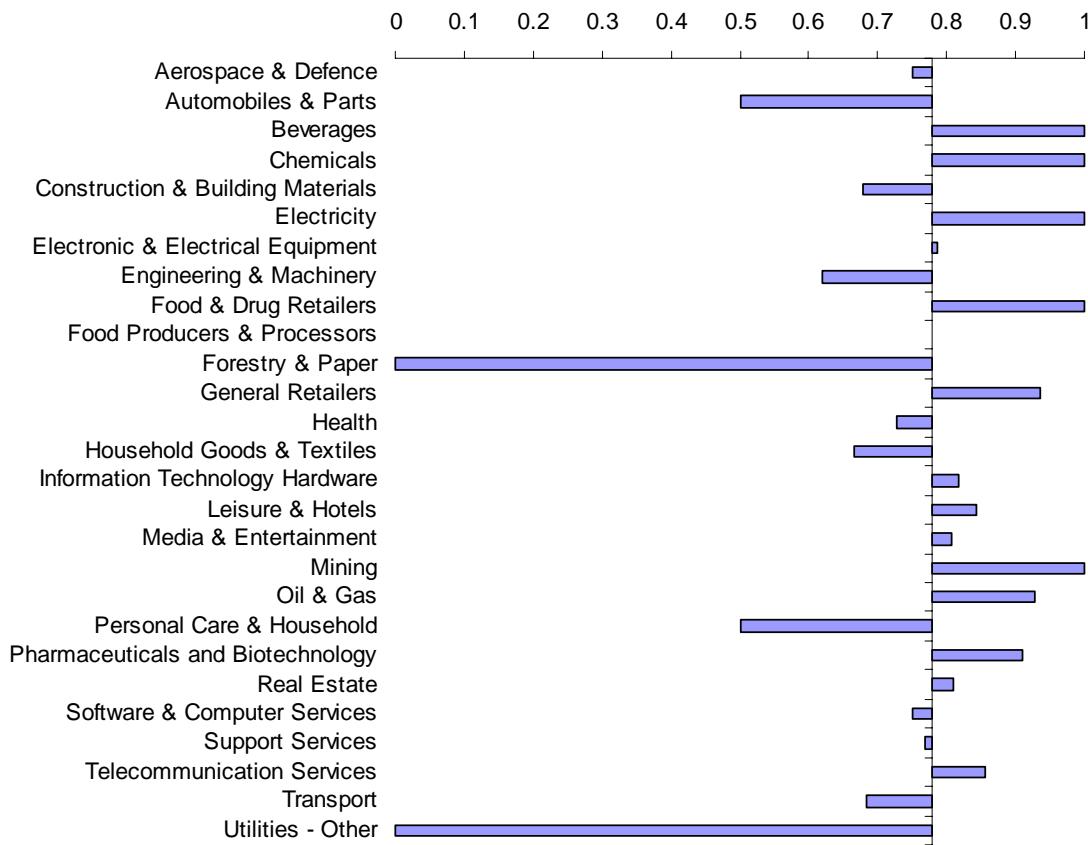


Table 1 Number of Firms per Industry

<b>Industry</b>	<b>Number of Firms</b>	<b>Percentage</b>
Aerospace & Defence	8	2.20%
Automobiles & Parts	6	1.65%
Beverages	2	0.55%
Chemicals	5	1.38%
Construction & Building Materials	28	7.71%
Electricity	1	0.28%
Electronic & Electrical Equipment	14	3.86%
Engineering & Machinery	21	5.79%
Food & Drug Retailers	2	0.55%
Food Producers & Processors	9	2.48%
Forestry & Paper	1	0.28%
General Retailers	31	8.54%
Health	11	3.03%
Household Goods & Textiles	6	1.65%
Information Technology Hardware	11	3.03%
Leisure & Hotels	19	5.23%
Media & Entertainment	26	7.16%
Mining	3	0.83%
Oil & Gas	14	3.86%
Personal Care & Household Products	2	0.55%
Pharmaceuticals and Biotechnology	11	3.03%
Real Estate	21	5.79%
Software & Computer Services	28	7.71%
Support Services	56	15.43%
Telecommunication Services	7	1.93%
Transport	19	5.23%
Utilities - Other	1	0.28%
<b>Total Firms/Percentage</b>	<b>363</b>	<b>100.00%</b>

Table 2 Descriptive Statistics

This table presents the descriptive statistics of our sampled variables. These are presented for the whole sample as well as separately for FTSE-250 and FTSE Small Cap constituent companies. The last column provides information on the statistical significance of the mean differences between the two sub-samples. Networking is a cumulative variable calculating the direct ties the CEO has developed during her corporate lifetime. Career Path is a binary variable taking the value of one if the CEO's previous employment was within the same industry, zero otherwise. Tenure is the number of years the CEO has retained her current position. SOB is the size of the board, measuring the number of all directors sitting on the board. IOB is the independence of the board measure, which is calculated as the ratio of independent directors to board size. Duality is a dummy variable taking the value of one if the roles of CEO and Chairman are split, zero otherwise. Market Value is the end of year market capitalization. Total Assets is the value of a company's assets for 2005. Leverage is the ratio of Total Debt to Total Equity and MtB is the ratio of Market to Book Value. The Return on Equity (ROE) and Return on Assets (ROA) annual figures are in percentages. Details on their calculation can be found in the paper (section 3). Obs. is the number of observations per category. Any variation in the number of observations is due to missing data.

Variables	Overall			FTSE 250			FTSE Small Cap			
	Obs	Mean	Median	Obs	Mean	Median	Obs	Mean	Median	Mean_Dif.
Networking	363	76.98	35	180	90.05	47.50	183	64.13	21	25.92**
Career Path (dummy)	363	0.78	1	180	0.80	1	183	0.76	1	0.04
Tenure (in years)	363	5.11	4	180	4.61	3	183	5.61	4	-0.99*
SOB	363	8.59	8	180	9.20	9	183	7.99	8	1.20***
IOB	363	0.54	0.56	180	0.56	0.57	183	0.53	0.50	0.03*
Duality (dummy)	363	0.92	1	180	0.95	1	183	0.90	1	0.05**
Market Value (£ mil)	363	562	332	180	946	715	183	184	148	762***
Total Assets (£ mil)	361	656	305	178	1142	806	183	188	137	953***
Leverage	361	0.81	0.45	178	0.78	0.60	183	0.84	0.18	0.06
MtB	361	81.42	3.39	178	97.33	2.67	183	65.95	3.63	31.37
ROE (%)	344	18.86	15.15	170	26.30	17.33	174	11.59	12.28	14.71**
ROA (%)	361	6.17	6.72	178	8.26	6.94	183	4.15	6.40	4.11***

Table 3 Correlation Matrix

This table presents the correlation coefficients for all the variables used in this study. Networking is a cumulative variable calculating the direct ties the CEO has developed during her corporate lifetime. Career Path is a binary variable taking the value of one if the CEO's previous employment was within the same industry, zero otherwise. Tenure is the number of years the CEO has retained her current position. SOB is the size of the board, measuring the number of all directors sitting on the board. IOB is the independence of the board measure, which is calculated as the ratio of independent directors to board size. Duality is a dummy variable taking the value of one if the roles of CEO and Chairman are split, zero otherwise. Market Value is the end of year market capitalization. Total Assets is the value of a company's assets for 2005. Leverage is the ratio of Total Debt to Total Equity and MtB is the ratio of Market to Book Value. The Return on Equity (ROE) and Return on Assets (ROA) annual figures are in percentages. Details on their calculation can be found in the paper (section 3). ROE\_5y and ROA\_5y are five year averages for ROE and ROA.

	Networking	Career Path	Tenure	SOB	IOB	Duality	Market Value	Total Assets	Leverage	MtB	ROE	ROA	ROE_5y	ROA_5y
Networking	1.000													
Career Path	-0.220	1.000												
Tenure	-0.015	0.078	1.000											
SOB	0.195	0.019	-0.042	1.000										
IOB	0.103	-0.078	-0.075	-0.240	1.000									
Duality	-0.011	0.023	-0.202	0.093	0.096	1.000								
Market Value	0.213	0.004	-0.101	0.407	0.102	0.062	1.000							
Total Assets	0.195	-0.039	-0.118	0.398	0.099	0.088	0.799	1.000						
Leverage	0.016	-0.123	-0.069	0.026	-0.042	0.067	0.092	0.188	1.000					
MtB	-0.045	-0.083	-0.055	-0.060	-0.012	0.038	-0.039	-0.074	0.591	1.000				
ROE	-0.009	-0.046	-0.008	-0.112	-0.003	0.006	0.073	-0.037	0.390	0.502	1.000			
ROA	-0.024	0.048	0.095	-0.107	-0.092	-0.073	0.122	-0.023	-0.031	0.057	0.449	1.000		
ROE_5y	-0.090	0.071	0.050	0.072	-0.050	-0.055	0.169	0.112	0.027	-0.137	0.417	0.358	1.000	
ROA_5y	-0.186	0.075	0.121	-0.013	-0.146	-0.099	0.114	0.056	0.025	-0.216	0.402	0.625	0.561	1.000

Table 4 CEO Networking Determinants

This table presents the regression results on the determinants of CEO networking. The dependent variable is CEO Networking, which is a cumulative variable calculating the direct ties the CEO has developed during her corporate lifetime. Career Path is a binary variable taking the value of one if the CEO's previous employment was within the same industry, zero otherwise. Tenure is the number of years the CEO has retained her current position. SOB is the size of the board, measuring the number of all directors sitting on the board. IOB is the independence of the board measure, which is calculated as the ratio of independent directors to board size. Duality is a dummy variable taking the value of one if the roles of CEO and Chairman are split, zero otherwise. FTSE-250 is a binary variable taking the value of one (zero) if the CEO works for a FTSE-250 (FTSE Small Cap) company. Total Assets is the value of a company's assets for 2005. Leverage is the ratio of Total Debt to Total Equity and MtB is the ratio of Market to Book Value. We use the cumulative distribution function (CDF) to treat outliers, i.e. Networking, Total Assets, Leverage, MtB. In order to calculate CDF the observations for each variable are ranked; the ranks are transformed so that they lie uniformly between zero and one. Both models include industry dummies. Asterisks indicate significance at 10% (\*), 5% (\*\*) and 1% (\*\*\*) levels. We calculate heteroskedasticity robust standard errors.

Dependent Variable	CDF NW		
	Predicted_sign	(1)	(2)
Career Path	-	-	-0.192*** (-5.94)
Tenure	?	0.002 (0.80)	0.003 (1.19)
SOB	+	0.026*** (2.83)	0.026*** (3.01)
IOB	-	0.207*** (2.41)	0.180** (2.23)
Duality	-	-0.071 (-1.28)	-0.055 (-1.04)
FTSE 250	+	-0.049 (-1.14)	-0.021 (-0.53)
CDF_Total Assets	+	0.524*** (5.50)	0.489*** (5.32)
CDF_Leverage	-	-0.147** (-2.29)	-0.153*** (-2.51)
CDF_MtB	?	0.260*** (4.61)	0.248*** (4.66)
_cons		-0.047 (-0.38)	0.097 (0.82)
Industry Dummies		YES	YES
Observations		361	361
R <sup>2</sup> (%)		31.48	38.30
F		6.40	7.40

Table 5 CEO Networking and Accounting Performance

This table presents the regression results on the impact of CEO networking to firm accounting performance. The dependent variable is performance, measured by either ROE or ROA and/or their five year averages. CEO Networking is a cumulative variable calculating the direct ties the CEO has developed during her corporate lifetime. Career Path is a binary variable taking the value of one if the CEO's previous employment was within the same industry, zero otherwise. Tenure is the number of years the CEO has retained her current position. SOB is the size of the board, measuring the number of all directors sitting on the board. IOB is the independence of the board measure, which is calculated as the ratio of independent directors to board size. Duality is a dummy variable taking the value of one if the roles of CEO and Chairman are split, zero otherwise. FTSE-250 is a binary variable taking the value of one (zero) if the CEO works for a FTSE-250 (FTSE Small Cap) company. Total Assets is the value of a company's assets for 2005. Leverage is the ratio of Total Debt to Total Equity and MtB is the ratio of Market to Book Value. We use the cumulative distribution function (CDF) to treat outliers, i.e. ROE, ROA, ROE\_5y, ROA\_5y, Networking, Total Assets, Leverage, MtB. In order to calculate CDF the observations for each variable are ranked; the ranks are transformed so that they lie uniformly between zero and one.

We apply three different methodologies/specifications. Models 1 and 2 use ordinary least squares (OLS) regression to test the contemporaneous relationship between performance and networking. Models 3 and 4 use two-stage least squares (2SLS) regression, whereas models 5 and 6 use OLS but now the dependent variable is long term performance. Asterisks indicate significance at 10% (\*), 5% (\*\*) and 1% (\*\*\*) levels. We calculate heteroskedastisity robust standard errors.

*Note:* When using the 2SLS method Stata suppresses the  $R^2$  when they are negative. We have included them only for illustration purposes. At any rate, the  $R^2$  has no statistical meaning in the context of 2SLS/IV and a negative  $R^2$  does not mean that our parameter estimates are weak.

Method	OLS_Contemporaneous			2SLS		OLS_Long Term Performance
	CDF_ROE	CDF_ROA	CDF_ROE	CDF_ROA	CDF_ROE5y	
Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)
CDF_NW	-0.017 (-0.29)	-0.055 (-0.95)	-1.055*** (-3.07)	-1.894*** (-3.67)	-0.139** (-2.16)	-0.150*** (-2.52)
Tenure	0.003 (1.28)	0.005** (1.96)	-	-	0.005** (2.07)	0.006*** (2.52)
SOB	-0.022*** (-2.85)	-0.024*** (-3.07)	-	-	-0.007 (-0.80)	0.001 (0.14)
IOB	-0.272*** (-2.87)	-0.263*** (-2.94)	-	-	-0.388*** (-3.39)	-0.336*** (-3.15)
Duality	-0.008 (-0.17)	-0.060 (-1.20)	-	-	-0.067 (-1.02)	-0.108* (-1.69)
FTSE 250	0.185*** (4.18)	0.226*** (5.34)	0.123* (1.85)	0.115 (1.24)	0.211*** (4.04)	0.262*** (5.72)
CDF_Total Assets	-0.048 (-0.41)	-0.207* (-1.91)	0.514* (1.91)	0.822** (2.18)	-0.032 (-0.24)	-0.269** (-2.37)
CDF_Leverage	-0.009 (-0.11)	-0.133** (-2.03)	-0.111 (-1.09)	-0.334** (-2.51)	-0.069 (-0.83)	-0.036 (-0.52)
CDF_MtB	0.297*** (4.15)	0.056 (0.91)	0.551*** (4.33)	0.501*** (2.85)	-0.057 (-0.73)	-0.255*** (-4.32)
_cons	0.633*** (5.87)	0.937*** (9.02)	0.489*** (5.99)	0.892*** (7.24)	0.856*** (7.00)	0.968*** (8.23)
Observations	344	361	344	361	289	310
R <sup>2</sup> (%)	17.32	16.97	-39.27	-70.91	16.31	23.64
F	10.04	9.02	7.51	5.07	7.32	12.49