Do banks really monitor? Evidence from CEO succession decisions

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Abstract

We demonstrate that bank lenders play an important monitoring role in CEO succession that is not observed for public bonds. Bank monitoring is associated with a greater likelihood of forced turnover, increased sensitivity of forced turnover to cash flow performance, and a greater likelihood a new CEO being hired externally. Our findings contribute to theories of relationship banking that propose a valuable monitoring role for well informed, incentivized bank lenders.

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1. Introduction

The unique role that bank lending plays in the financing of corporations has been developed in a number of theoretical studies. Firms borrowing from banks are expected to benefit from close monitoring by bank lenders, whose relationship with the firm allows them access non-public data unavailable to arms-length providers of debt capital (see Diamond, 1984; Rajan, 1992; Nakamura, 1993). This superior monitoring incentive and ability had led some to describe bank financing as special or unique in comparison to debt financing in public bond markets (see James, 1987). Current research draws inference of the special nature of bank lending from event studies of the stock price response to bank loan announcements relative to public bond issuance (see Mikkelson and Partch, 1986; James, 1987) or by analyzing the role of banks in providing finance to firms otherwise screened out of public debt markets (see Hadlock and James, 2002; Denis and Mihov, 2003). As noted by Ahn and Choi (2009), very few studies provide direct evidence that banks actively influence corporate decision making.

We examine this purported special monitoring role that banks fulfil by comparing the incidence of forced chief executive officer (CEO) turnover and external CEO succession across alternative sources of firm borrowing. Our sample comprises non-financial firms in the FTSE 350 index of the London Stock Exchange (LSE) from 2000 to 2008 and our hand-collected data on existing debt finance and new borrowing sources allows us to distinguish between borrowing from banks and borrowing in public bond markets. We focus on large firms who are more likely to have access to public debt markets, whereas smaller firms are frequently restricted to private debt markets (see Denis and Mihov, 2003). If banks are superior monitors relative to dispersed public bondholders we expect to observe a stronger incidence of performance-related forced CEO turnover and external CEO succession for firms that borrow from banks relative to those

that borrow in public debt markets. CEO succession decisions provide a natural setting to study monitoring efficiency because such decisions have highly visible outcomes and are associated with significant changes in operating and financial policies (see Denis and Denis, 1995; Parrino, 1997).

Our findings suggest banks are indeed superior monitors in comparison to public bondholders based on CEO succession decisions. We find that the likelihood of forced CEO turnover is increasing with bank leverage but is unrelated to publicly traded debt. We also find forced CEO turnover is more sensitive to cash flow measures of firm performance when firms borrow from banks. Finally, external CEO succession is increasing in likelihood when firms issue bank debt, but is unrelated to new borrowing in public debt markets.

Our findings contribute to the large volume of research on the unique role that banks are able to play in monitoring borrower firms by providing direct evidence on one highly visible outcome from bank monitoring. Our results confirm the theoretical predictions of Diamond (1984) and Fama (1985) that banks are indeed superior to public lenders in monitoring top management. This can arise from informational advantages generated through the provision of additional banking services or because the undiversified nature of bank lending encourages more active scrutiny of a borrower's credit risk. Our results also contribute to research on lender monitoring in corporate governance. Our findings highlight that treating all lenders equally is inappropriate in a number of cases. Bank monitoring can be viewed as complementary to monitoring from outside directors, large external shareholders, and external capital markets for takeovers and raising equity capital (see Weisbach, 1988; Denis et al., 1997; Franks et al., 2001).

The remainder of this paper is structured as follows: Section 2 discusses related literature on CEO succession, lender monitoring and corporate restructuring, and the unique role of bank

lenders in firm monitoring. Section 3 outlines our sample and data collection for CEO succession and sources of corporate borrowing. Section 4 presents our empirical findings and evaluates our results, and Section 5 concludes.

2. Bank monitoring and CEO succession

2.1. Firm performance, monitoring and CEO succession

The finding of a negative relation between firm performance and disciplinary or forced CEO turnover has been one of the most consistent empirical results in the financial economics literature over the past thirty years. This result is robust to a number of alternative accounting, stock price and financial distress measures and has been established in the US (see Weisbach, 1988; Huson et al., 2001), Italy (see Brunello et al., 2003), and for the UK (see Conyon and Florou, 2002). Poor performance is also associated with higher incidence of external CEO succession (see Huson et al., 2001; Dahya and McConnell, 2005).

A large volume of prior research uses CEO succession decisions as a mechanism to investigate the efficacy of corporate governance. Important roles have been found for board structure (see Weisbach, 1988) and large external shareholders (see Denis et al., 1997). An entrenching role has also been noted for incumbent director ownership (see Denis et al., 1997; Brunello et al., 2003) and where the CEO is a company founder (see Huson et al., 2001; Hillier and McColgan, 2009). Denis and Denis (1995) suggest an important role for external takeover markets in the removal of poorly performing CEOs. However, for the UK Franks et al. (2001) find that takeovers are associated with higher rates of director turnover but find no evidence that such discipline is focused exclusively on poorly performing managers.

An alternative source of external capital market monitoring comes in the form of providers of debt and equity capital. Easterbrook (1984) proposes that external capital markets can exert discipline on firms when they seek to raise equity capital. The need to raise external funding puts the firm in a weaker bargaining position and allows providers of new capital greater monitoring and control over the management of the firm. Empirical evidence of such monitoring in UK firms is provided by Franks et al. (2001) and Hillier et al. (2005), who report that forced board turnover and CEO turnover respectively is more frequent at poorly performing firms who need to raise external equity capital.

A small number of studies have highlighted an important role for lender monitoring in top management change. Franks et al. (2001) find that forced executive board turnover is increasing with book leverage for poorly performing UK firms. Kang and Shivdasani (1995) find monitoring by main banks, which hold debt and equity positions in borrowing firms, leads to increased performance-turnover sensitivity for a sample of Japanese firms. Finally, for a sample of poorly performing US firms, Gilson (1989) finds that senior management turnover is increasing with leverage and the incidence of financial distress. However, none of this CEO turnover research distinguishes between the efficiency of monitoring by different providers of debt capital.

2.2. Evidence on the unique nature of bank monitoring

If banks and private lenders are comparatively superior monitors to public bondholders, as suggested by Diamond (1984), we expect to see differential CEO succession rates for bank dependent firms, and firms seeking to raise new bank financing by comparison to those firms accessing public debt markets. Diamond (1984) argues that free-riding in lender monitoring can

be resolved where a single bank lender pools resources from many depositors and lends across a range of firms. Individual lenders have the financial incentive to exert costly monitoring behaviour and overcome free-riding problems. Diamond (1991) extends this argument further and proposes that firms borrow and repay monitored bank loans until they have established sufficient reputation for non-default, which in turn allows them to borrow funds in lower cost public debt markets. These moral hazard arguments are grounded in agency costs of debt where bank monitoring can mitigate underinvestment, agency costs of free cash flow, or asset substitution problems relating to existing borrowing. Such arguments are predicated on the basis that one or a small number of private lenders are less likely to suffer the free-riding problems in monitoring that public bondholders with dispersed financial claims experience (see Diamond, 1991; Rajan, 1992).

Empirical evidence on the role of bank monitoring has generally sought to address one of three specific research questions. Firstly, several studies draw inference on bank monitoring efficiency from the market reaction to bank loan announcements relative to alternative financing sources. Event studies of the stock price response to announcements of bank loans typically document a positive stock price response (see Mikkelson and Partch, 1986; James, 1987). Lummer and McConnell (1989) find this effect to be driven by the market reaction to loan renewals, suggesting repeat bank lending serves as a valuable signal to outside investors. The positive market reaction to announcements of bank debt stands in contrast to the insignificant or statistically negative market reaction to announcements of public bond issues and seasoned equity offers (see Hadlock and James, 2002).

The second broad area of study concerning the special monitoring role of bank debt draws conclusions on monitoring efficiency by studying the types of firms that borrow from banks and

other private lenders, rather than public bond markets. Johnson (1997) and Hadlock and James (2002) highlight the importance of banks in providing credit to small, higher growth firms, and firms with higher stock price volatility. These studies conclude that such firms are subject to higher information asymmetries and potential agency costs concerning free cash flow, and benefit from the monitoring that banks can provide. These costs are expected to prevent small and risky firms from accessing unmonitored public debt markets.

The positive stock price response to bank loans and the availability of bank credit to firms unable to access less expensive public bond markets is commonly attributed to the unique monitoring role that banks are able play in assessing the credit risk of borrower firms. However, given the empirical design of event studies and research investigating the determinants of debt sourcing, inferences regarding the unique nature of bank monitoring are inherently indirect. A third strand of research, aims to provide direct evidence that banks do indeed monitor borrowing firms by analyzing the relationship between existing or new bank debt, corporate decision making, and the market's perception of such decisions.

Hirschey et al. (1990) find a positive stock price response to announcements of asset sell-offs where firms have bank debt outstanding. This contrasts with the statistically insignificant market reaction to sell-offs for firms with little or no bank debt outstanding. Similar evidence is found in Datta et al. (2003), where shareholder gains to sell-off announcements are increasing with leverage, but this positive relationship is more pronounced for private debt relative to public debt. Collectively, these studies suggest that monitoring by private debtholders reduces concerns over the use of free cash flow generated when firms sell assets. Low et al. (2001) examine the relationship between the market reaction to dividend omissions and bank debt. They find that event study abnormal returns are positively related to bank debt outstanding, and significantly so

for smaller firms in their sample. These studies collectively suggest an important monitoring role for banks given the more positive perception to corporate announcements in the presence of bank debt.

More direct evidence of bank monitoring is provided by Ofek (1993) who finds evidence that it is specifically private leverage rather than public leverage that is associated with an increased prevalence of operating restructuring decisions following a large stock price decline. In a similar vein, Datta et al. (1999) document a negative relationship between the at-issue yield spread[1] on a firm's first public bond offer, and both the presence and strength of a firm's banking relationship. These authors conclude that the cross-monitoring benefit of bank debt can also extend to publicly traded debt securities. Finally, Ang et al. (2000) show that the agency costs of private firms monitored by banks are lower and conclude that bank monitoring adds value.

Having established that banks are expected to be superior in monitoring borrower firms, we expect that a natural outcome of such monitoring will be an increased rate of forced CEO turnover, a greater sensitivity of forced turnover to firm performance, and an increased incidence of external CEO succession.

3. Data

3.1. Sample construction

We construct our sample by studying CEO succession and the source of borrowings for firms in the FTSE-350 index of the largest firms on the LSE over the time period 2000 to 2008. In keeping with prior literature on capital structure and security issuance we exclude financial firms and utilities given the arguably stringent regulation that such firms are subject to and the

[1] This is defined as the difference in basis points between the at-issue yield for the initial public debt offer and the yield of a Treasury bond with similar maturity and coupon on the same day.

frequency, and complexity, of security issuance by financial institutions during our sample period. We focus on the largest firms on the LSE to ensure sufficient news coverage of CEO replacement and debt issuance announcements. Accounting and stock price data is collected from 2000 to 2007 and this is related to CEO turnover and debt issuance in the subsequent year.

To minimize concerns surrounding survivorship and new list bias we allow firms to enter the sample as they join the FTSE-350 list during the sample period and backdate our data collection to the beginning of the sample period for any years where the firm is quoted on the LSE but was not part of the FTSE-350. Firms remain in the sample even where they subsequently drop out of the FTSE-350 index but remain quoted on the LSE. Firms drop out of the sample only when they are delisted.[2] We require only that firms have at least two consecutive years of published annual reports such that we can relate CEO turnover in year t+1 to existing debt and firm characteristics in year t, and new debt issuance in year t+1. For each firm that meets our selection criteria we collect the firm's annual reports from 2000 to 2008. Annual reports are used to track CEO succession and to identify the source of existing borrowings in the footnotes to the financial statements. Our sample selection process produces a final sample of up to 2,110 firm-year observations across 310 individual firms.

3.2. Classification of CEOs and succession data

Reports of CEO turnover and external succession are hand collected from annual reports and the Nexis UK database. Nexis UK provides access to national and regional newspapers, including the Financial Times, and regulatory news feeds of formal announcements to the LSE. We classify CEO turnover as occurring where the name of the top officer in the company's

[2] For example, if a firm is a constituent of the FTSE-350 in 2004 and 2005 we track the company back to 2000 or when it first listed and we track forward until the end of the sample period or delisting, whichever comes first.

annual report changes from year t to t+1 and define TURNOVER as a dummy variable that is set equal to one if the company experiences a change in CEO and zero otherwise. Following Conyon and Florou (2002) if the firm reports a chief executive officer we classify this individual as the CEO. In the absence of a chief executive (officer) we examine the annual report; particularly the list of board directors, the report of the compensation committee, and the review of operations to determine who the most significant executive is, and classify this individual as the CEO.[3] Hereafter, we refer to the top officer as the CEO.

We define FORCED as a dummy variable set equal to one if the company experiences forced CEO turnover and zero otherwise. We follow the treatment of Huson et al. (2001) to classify CEO turnover as forced. Where news reports suggest that the departing CEO was 'fired,' 'forced out,' 'removed,' 'ousted,' left following 'policy disagreements,' or similar we classify turnover as forced. For all remaining turnover announcements, we classify CEO turnover as forced where the CEO is under 60 years of age and the turnover announcement (1) does not report the reason for departure as involving death, ill health, or the acceptance of another position (elsewhere or within the firm) or (2) reports that the CEO is retiring within six months of the departure announcement. We pay particular attention to future employment prospects for those CEO changes where the CEO is between 50 and 60 and states retirement as the reason for their departure. Since its adoption of the Higgs Review in 2003, the UK Corporate Governance Code suggests that CEOs should not succeed to become chairman of the same company. Anecdotal evidence from our data collection suggest that one unintended consequence of this proposal has been to create a market in otherwise early retirements for CEOs at large UK firms to become executive chairman at another large firm.

[3] Typically this will either be a managing director working with a non-executive chairman of the board, or an executive chairman of the board. It is apparent when collecting our sample data that large UK firms have gradually moving towards universal adoption of the CEO title.

We define OUTSIDE as a dummy variable set equal to one if a new CEO is appointed from outside the company and zero otherwise. Our definition of external CEO succession also follows that of Huson et al. (2001). We classify new CEOs as outsiders if the CEO joined the firm within the previous 12 months. It is unlikely that the performance of a newly appointed director whose tenure with the company spanned such a short time period would, all else equal, warrant promotion to the position of CEO, suggesting that such a director was likely appointed to the board with the expectation of being elevated to the CEO position (Kang and Shivdasani, 1995). Appointments from outside the board but within the company are treated as internal succession.

3.3. Classification of debt sources and new issuance data

Annual reports are also used to collect data on several debt variables for sample firms. We hand collect data on outstanding debt from public bonds, banks, and non-bank private lenders from the footnotes to each firm's financial statements. Following Johnson (1997) we require that debt is explicitly defined as bank debt in the financial statements, otherwise we classify private debt as non-bank private debt. This treatment differs from Hadlock and James (2002), who presume all private debt to be bank debt unless explicitly stated otherwise. Given the ambiguity in classifying balance sheet debt that reflects the amalgamation of several previously announced debt offers and lines of credit we carry out robustness testing using both private leverage and private debt issuance as alternative explanatory variables in Section 4.5.

We measure existing debt as the ratio of total debt from any single source divided by book value of total assets. LEVERAGE is the ratio of total debt divided by the book value of total assets. PUBLIC LEVERAGE is the ratio of total publicly traded debt divided by the book value

of total assets. BANK LEVERAGE is the ratio of total bank debt, including overdrafts, divided by the book value of total assets. We focus on measures of debt source divided by assets rather than debt source relative to total debt to measure the relative contribution of a borrowing source to the capital structure of a firm. Focusing on debt source in proportion to total borrowing may lead to inappropriate conclusions regarding the importance of debt for firms with low leverage.

As with CEO turnover, debt issuance is measured in year t +1 to capture the simultaneity between accessing new funds and the disciplinary replacement of top management. Where firms have multiple debt issuances during any given year, we combine this together as a single binary variable to indicate whether the firm has borrowed from one of our listed sources. The empirical design is used to measure a lender's decision to renew or restructure existing debts and the potential monitoring role that different lenders play when deciding to grant credit.

When collecting data on new debt issues we follow Hadlock and James (2002) in using the following list of keywords to search for articles on debt issues sourced from Nexis UK.[4] We define DEBT ISSUE as a dummy variable set equal to one if the firm announces a debt issue from any source during the financial year t+1 and zero otherwise. PUBLIC ISSUE is a dummy variable set equal to one if the firm announces an issue of publicly tradable bonds and zero otherwise. BANK ISSUE is a dummy variable set equal to one if the firm announces an issue of bank debt and zero otherwise. To better screen firms that are dependent on a single borrowing source, and theoretically subject to greater monitoring, we also replace each of our ISSUE variables with ONLY postscripts. These variables are set equal to one if the company borrows only from the specified single lending source during year t+1 and zero otherwise.

[4] We search under the terms 'line of credit,' 'loan agreement,' 'bank loan,' 'credit agreement,' 'credit line,' 'credit facility,' 'credit extension,' 'new loan,' 'loan renewal,' 'loan revision,' 'loan extension,' 'term loan,' 'debt issue,' 'debt offer,' 'public debt issue,' and 'public debt offer.' Additionally, to augment the sample, the following keywords are also employed: 'bond,' 'bond issue,' 'debt notes,' 'line of credit,' 'loan facility,' 'working capital facility,' 'private placement,' and 'overdraft.'

3.4. Firm and CEO characteristics

We supplement our data collection with a range of CEO and board characteristics that have been shown to be related to CEO succession. We expect that recently appointed CEOs are given a grace period to turn around poorly performing firms. Consistent with this, Kang and Shivdasani (1995) find that recently appointed CEOs are less likely to subject to forced turnover. We define NEW CEO as a dummy variable set equal to one if the incumbent CEO has held their position for less than one year and zero otherwise. Hillier and McColgan (2009) find that founders are less likely to be forced out than non-founder CEOs. As such, we define FOUNDER as a dummy variable set equal to one if the CEO is associated with the founding of the company and zero otherwise. Following Adams et al. (2009), we associate founding events with start-up CEOs and their descendants, and we also consider founders as CEOs who led major control changes through the acquisition of stock and buyout deals. CEOs with long period of tenure are expected to exercise stronger control over internal governance mechanisms and be more insulated from control threats; leading to managerial entrenchment and a reduced probability of turnover (see Berger et al., 1997). We measure TENURE as the number of years that the incumbent CEO has held office. In our regressions we focus on the natural logarithm of CEO tenure as we expect that entrenchment will increase at a diminishing rate over time.

Because the likelihood of external CEO succession will be influenced by the make-up of the current board we control for the size and independence of the board from current management. Prior studies on CEO succession have shown that external hires are more likely when the board is smaller and when there are more independent directors on the board (see Huson et al., 2001; Dahya and McConnell, 2005). This may arise due to better monitoring by

smaller and more independent boards, or is simply the result of a mechanical relation that smaller boards with more non-executives provide fewer viable internal executive candidates to replace a departing CEO. We define BOARD SIZE as number of directors on the board at the financial year-end. FRACTION NED is the total number of non-executive directors on the board divided by the size of the board. All data on board structure and CEO characteristics is collected from annual reports and the Nexis UK database.

We use three core measures of firm performance in our CEO succession regressions. Firstly, we include a measure of abnormal stock price returns. We define RETURN as the daily buy-and-hold return on the stock over the firm's accounting year minus the return on the FTSE-All Share Index over the corresponding period. Daily stock returns are calculated from Datastream return index values, which capture the change in stock price and income from dividend payments. ΔIROA is the change in industry-adjusted return on assets (IROA) over the firm's accounting year. IROA is calculated as earnings before interest, tax, depreciation and amortization (EBITDA) divided by book value of total assets for each sample firm minus the same ratio for the median Datastream firm in the same FTSE level three industry group[5] as the sample firm during the same calendar year. In addition to these commonly used measures of firm performance, we include interest coverage as a third measure of firm performance that is more directly correlated with the incentives of lenders to monitor. Interest coverage is also a frequently used covenant in private lending agreements, providing a focus for lenders to become active monitors if the covenant has been breached. We define LOW IC as a dummy variable set equal to minus one where the company has an interest coverage ratio of less than 0.80, and zero

[5] FTSE level three industry groups are broadly comparable to two digit SIC codes.

otherwise.[6] Firms that have no debt outstanding are coded as zero to signify they are unlikely to be financially distressed. Interest coverage is defined as the ratio of EBITDA divided by total interest expense. To aid presentation in our results we report a single variable PERFORM corresponding to the appropriate firm performance measure.

Finally, we include a REVENUE variable as a measure of firm size. This is defined as real revenue for the accounting year deflated at consumer price inflation to the year 2000. In our empirical specifications we use the natural logarithm of firm revenues. Table 1 provides a summary of the key variables used in this study, their definition, and the source of data.

[Insert Table 1 about here]

3.5. Descriptive statistics

Descriptive statistics for firm data, CEO characteristics, and debt issuance are presented in Table 2. Panel A presents data on borrowing source, board, and CEO characteristics. To aid comparison with US research, we report the proportion of total debt that is borrowed from our previously described public and bank sources. Despite our focus on large firms, bank debt makes up over 60% of total borrowing. Approximately 20% of total balance sheet debt is from publicly traded bonds. This lies between the 26% found by Johnson (1997) and 14% found by Hadlock and James (2002) for more general samples of US firms where the typical firm is substantially smaller than for our sample. Given that the ability to borrow in public markets is predicted to be increasing with firm size and borrower reputation (Diamond, 1991), our descriptive statistics highlight that UK firms are heavily reliant on borrowing from banks.

[6] We set the variable equal to negative one, rather than plus one, simply to maintain consistency in the presentation of empirical results whereby poor performance is associated with a negative value.

Marchica (2008) finds that UK firms place greater reliance on short-term debt than comparable US firms. Given that bank debt is generally issued over shorter maturities (see Denis and Mihov, 2003), these findings can be viewed as complementary and highlight the potential for a strong bank monitoring role given their comparatively greater importance in the capital structure of UK firms. The average board has 9 members, of whom, 55.87% are non-executives. Board size and non-executive representation is higher than found in earlier UK research (see Hillier et al., 2005), which reflects the larger firms used in our sample.

[Insert Table 2 about here]

We report data on CEO succession in Panel B. 17.68% of CEOs are classified as founders, which is close to the 15.58% in Adams et al. (2009) for Fortune 500 firms. The forced turnover rate of 4.28% is broadly consistent with prior UK evidence; Conyon and Florou (2002) find a forced turnover rate of 3.98%. We find that externally hired CEOs comprise 39.41% of all successions. This rate is higher than the overall outside succession rate of 29.83% reported in Dahya and McConnell (2005), but is very similar to the rate of 39.16% they report in the final year of their sample, 1999. The rate of external succession is generally higher than observed in US studies of CEO succession. For example, Huson et al. (2001) find that 19.00% of all successions involve outsiders. This may reflect larger corporate boards in the US, which allows for a larger pool of internal candidates when choosing CEO successors.

We report descriptive statistics for new debt issuance in Panel C, where data is separated by whether the firm borrowed from public or bank debt sources and whether they borrowed debt only from that specific source. We report separate data for firms borrowing from single or

multiple borrowing sources given the findings of Johnson (1997) and Hadlock and James (2002) that firms with access to public debt markets also choose to borrow from banks. To better understand the monitoring efficacy of banks it will be important to consider separately those firms who have not been able to borrow from a number of sources.

Consistent with the balance sheet data in Panel A, UK firms have a strong reliance on bank debt when borrowing. We find 675 firm years with announcements of debt issuance, of which 453 involve the issuance of bank debt. Conditional on issuing debt, over half of the sample (342 firm years) announce only the issuance of bank debt. The relative frequency of public debt issuance is substantially lower than found in Hadlock and James (2002) and Denis and Mihov (2003) for general samples of US firms, further highlighting the reliance of UK firms on bank debt. Given the relatively larger size of firms listed on the FTSE 350 index, theoretical models of debt source predict that our sample should actually issue publicly tradable bonds at a higher frequency than found in US studies (see Diamond, 1984; Fama, 1985).

Collectively, these statistics point towards an important role for private lenders, and specifically banks, in the monitoring of UK firms. Given the comparatively greater role that banks play in providing debt to UK firms we expect to observe an important monitoring role in the forced removal of the incumbent CEO and an increased likelihood of replacement by an externally hired replacement. We investigate these arguments in the remainder of our paper.

4. Empirical analysis

4.1. Probit specification

In analyzing forced CEO turnover and external CEO succession we estimate the following probit models:

(1)

(2)

where Φ is the standard cumulative normal distribution, X_i is the vector of explanatory variables and β is the population vector to be estimated by maximum likelihood. As previously discussed, CEO turnover and outside succession occurs in year t+1 and is related to firm, lender and CEO characteristics in year t, and debt issuance in year t+1.

To aid interpretation of results, the marginal effect rather than the coefficient estimates are presented. The marginal effect of a regressor is given as the derivative of the probability of turnover with respect to an individual regressor and is calculated at the mean value of all variables. For dummy variables, the marginal effect represents a discrete change in the dummy variable from zero to one (or minus one in the case of our LOW IC variable). All probit models of forced CEO turnover include year and FTSE level two industry dummies, which are not reported for brevity.

4.2. Firm performance, lender monitoring, and forced CEO turnover

We begin our analysis of CEO turnover by investigating the basic relation between firm characteristics, and LEVERAGE and DEBT ISSUE as measures of overall lender monitoring. Table 3 presents the results of our base empirical specification of these relationships. We expect that forced turnover is a function of firm size, whether the incumbent CEO has recently been appointed, the founder status of the incumbent CEO, CEO tenure, and firm performance. We

initially examine lender monitoring through total leverage and debt issuance variables, and separately through the interaction of firm performance with debt issuance.[7]

[Insert Table 3 about here]

Our baseline specifications highlight that our dependent variable FORCED is negatively related to FOUNDER and NEW CEO. Consistent with prior research, we find a strong and significantly negative relationship between forced turnover and PERFORM, irrespective of the performance measure employed. REVENUE and TENURE are not significantly related to forced turnover in most of our regression models. Our preliminary findings are consistent with earlier research on the determinants of top management turnover (see Brunello et al., 2003; Hillier and McColgan, 2009).

The results for lender monitoring at this stage provide weak evidence of an important role for debt. In our base regressions 1, 3, and 5, we find no evidence that forced turnover is increasing with LEVERAGE or DEBT ISSUE for the general sample. The non-finding for lenders and forced turnover in these models may arise because the basic relationship between debt issuance and forced turnover is performance contingent. For strong performers, the provision of new debt capital may actually serve as a signal of confidence in incumbent management; validating their strong performance through provision of new capital for expansion. On the other hand, for weak performers new debt financing may come at the expense of increased lender monitoring and the replacement of existing management. To examine this

[7] We do not report results for interaction variables between leverage and firm performance given the difficulty in interpreting the interaction of two continuous variables. We find no relation between leverage and firm performance when leverage measures are transformed to dummy variables. Further discussion of this testing is provided in our discussion of robustness testing.

issue further, we interact firm performance and debt issuance to proxy for the differential monitoring by lenders when poorly performing firms are forced to tap debt markets. Results are reported in models 2, 4, and 6 of Table 3. When performance is measured using RETURN and LOW IC we again find no evidence of a significant monitoring role for lenders. When ΔIROA is used to measure firm performance we find a marginally significant positive relationship between LEVERAGE and the incidence of forced turnover. Moreover, the interaction between DEBT ISSUE and ΔIROA is negative and significant at the 5% level, indicating that the relationship between firm performance and forced turnover is stronger for firms that require borrowing funds in debt markets. At this stage, our results provide mixed support for prior empirical research on lender monitoring. Gilson (1989) and Franks et al. (2001) highlight the important role lenders can play in the removal of top management in financially distressed and poorly performing firms respectively. The results for ΔIROA also support the hypothesis of Easterbrook (1984) that capital markets can play an important monitoring role when poorly performing managers are forced to raise external capital.

4.3. Lender monitoring and the source of debt financing

We extend our earlier analysis to consider the different monitoring roles that are played by different providers of finance. Following the theoretical work of Diamond (1984) and Rajan (1992), we expect that banks have stronger monitoring incentives given the concentration of funds from a small group of lenders, access to repayment history of past and existing loans, and information collected through the provision of additional banking services. We report separate regressions for firm borrowing from any source of debt and for those firms borrowing only from one specific source; our ISSUE and ONLY postscripts described in Section 3.3.

[Insert Table 4 about here]

Again, forced turnover is unrelated to REVENUE and TENURE, and is significant and negatively related to NEW CEO, FOUNDER, and PERFORM across all our regression models. Given our earlier discussion of these findings in Table 3 we avoid further repetition of discussion of these variables.

In all specifications BANK LEVERAGE is significant and positively related to forced CEO turnover at the 5% level or better while PUBLIC LEVERAGE is statistically insignificant in all regression models. This finding highlights an important monitoring role for bank lenders relative to public lenders. Our results provide direct evidence that banks are able to monitor borrowing firms and force change in the running of the company. Our finding compliments the empirical research of Ahn and Choi (2009) that bank monitoring directly influences corporate decision making in a manner that is not observed for public lenders.

Consistent with our findings in Table 3, we again find no evidence that issuance of new debt in isolation, irrespective of the lending source, is associated with increased CEO turnover rates. This again may be unsurprising given that existing lenders, as proxied by our leverage source variables, are actively able to monitor CEOs through regular monitoring of the terms of existing loans. We expect that monitoring from new loans or renewals of existing loans will focus only on poorly performing firms.

To investigate this issue further, we present additional results for the interaction between firm performance and debt issuance in Table 5. All firm, CEO, and existing leverage variables retain their significance from Table 4, further emphasising the important role for banks lenders in

firm monitoring. In models 1 and 2 we find no significance in the interaction term between RETURN and debt issuance variables. This result holds for regressions using BANK ISSUE and BANK ONLY. This may suggest that neither public nor private lenders are active in monitor poorly performing firms when deciding to renew loans or to lend new funds. An alternative explanation is that stock prices are a noisy measure of lender incentives to monitor. As residual risk bearers, stockholders are junior to creditors in their claim to the firm's cash flows. As such, our accounting profit and interest coverage ratios that are constructed from EBITDA, which proxy for underlying cash flows, may be of greater interest to lending institutions. In support of these arguments, Kang and Shivdasani (1995) find that the relationship between top management turnover and firm performance in Japanese firms is stronger for firms with a main bank relationship only when firm performance is measured using accounting profit. Since profitability and interest coverage are frequently used covenants in loan agreements, we expect they are more closely aligned with lender incentives to monitor than stock prices.

[Insert Table 5 about here]

Our results for ΔIROA provide mixed support for our arguments relating to the superiority of private lender monitoring. The interaction between both BANK ISSUE and BANK ONLY and ΔIROA is negative and significant at the 1%. However, we also find some evidence that public debt issuance is associated with a stronger relationship between forced turnover and firm performance. Prior theory on the superiority of bank monitoring does not rule out a monitoring role for public bondholders, and our result could be interpreted as supporting Easterbrook's

(1984) general view of capital markets as effective monitors when firms seek to raise new finance.

For our LOW IC variable the interaction between private debt issuance and firm performance is significant for BANK ONLY but not for BANK ISSUE. Our results suggest that banks are able to force CEO turnover in financially distressed firms only when those firms have no alternative source of borrowing. We find no evidence that public lenders play a role in forced CEO turnover decisions based on poor interest coverage as a measure of financial distress. Collectively these results suggest that for firms who do not generate sufficient cash flow to meet interest payments the relationship between financial distress and forced turnover is stronger when firms have to borrow from banks. After controlling for the interaction of debt issuance in our LOW IC regressions we find some evidence that debt issuance in isolation actually reduces the likelihood of forced CEO turnover. As previously argued, one plausible interpretation of this finding is that there are two distinct types of debt issuers; one group of strong performing managers who issue debt to capitalise on valuable growth opportunities and/or take the opportunity to raise capital at lower cost given the favourable performance of their firm, and a second group of poorly performing CEOs who are forced from office as part of the restructuring of their financially distressed firms.

Collectively, both the strong and positive relationship between FORCED and BANK LEVERAGE, and the significance of the interaction between firm performance using ΔIROA and LOW IC and bank debt issuance provides direct evidence that private lenders are active monitors of top management. This supports the superior monitoring incentives assigned to private lenders by Diamond (1984). Our findings complement and extend the inferences drawn from event studies that report a positive stock price response to bank loan announcements (see

Mikkelson and Partch, 1986; James, 1987) and research on the role that banks and other private lenders play in provision of finance to firms who are unable to borrow in public bond markets (see Hadlock and James, 2002; Denis and Mihov, 2003). Our results also complement Ofek (1993), who finds that private lenders rather than public lenders lead firms to restructure operations following large stock price declines.

4.4. Lender monitoring and CEO succession

The literature on external CEO succession argues that outside CEO hires are more likely to be appointed to firms that require restructuring and a review of existing business practices. As such, external succession is expected to be more likely following poor performance and the forced turnover of the incumbent CEO (see Denis and Denis, 1995; Parrino, 1997). Indirect evidence that externally hired CEOs are superior to internal hires is provided by event studies that find a significantly greater positive reaction to external CEO succession relative to inside succession (see Dahya and McConnell, 2005). Given the above arguments, we propose that in addition to forcing the removal of a poorly performing CEO; lenders may also monitor the selection of a replacement and be associated with greater incidence of external CEO succession.

In Table 6 we present the results of a probit model where the dependent variable is OUTSIDE. We relate outside succession to our previously documented firm performance variables, REVENUE, and the previously described lender monitoring variables. In addition to these, we include FORCED as an explanatory variable that we expect to be positively related to the incidence of outside succession. We also include BOARD and FRACTION NED to capture the relationship between board monitoring and the increased probability of outside succession (see Dahya and McConnell, 2005; Hillier et al., 2005). Since these regressions are estimated

only for succession events, we exclude industry and year dummies from this test given the smaller number of observations.

[Insert Table 6 about here]

Across all regressions we find that outside succession is positively related to FORCED and FRACTION NED but is unrelated to LN_REVENUE, BOARD, and in the majority of cases, PERFORM. That outside succession is more frequent following forced turnover and on boards with a higher fraction of non-executive directors supports Parrino (1997) and suggests an important role for outside hires in firms that require a change of management policy.

We find that successor origin is unrelated to our proxies for existing leverage. As such, existing bank and public lenders appears to play no role in choosing CEO replacements based on the non-association to the likelihood of an external hire. We do find strong evidence that BANK ISSUE and BANK ONLY are associated with an economic and statistically significant increase in the likelihood of external CEO succession. The marginal effect of changing the debt issuance dummy variables from zero to one range from 0.1766 and 0.2605 depending on the performance measure, and whether we focus on firms borrowing only from single or multiple sources.

Collectively these results provide further direct evidence on the role of banks in monitoring borrower firms. Our findings suggest that well informed private lenders with strong financial incentives to monitor client firms are able to remove poorly performing CEOs and replace them with externally hired successors who are more likely to restructure operational and financial policies with a view to maximizing the value of the firm's assets.

4.5. Robustness testing

Our core finding that bank monitoring has a direct effect on CEO succession decisions is robust to a series of further analysis, which we detail in this section of our paper.[8] Firstly, classification of private debt between bank and other non-bank private sources is straight-forward from reading news reports at the time where firms announce raising new finance. When dealing with previously issued debt such classification is inherently more subjective. We have addressed this issue by defining bank debt as only those borrowing facilities explicitly described in the financial statements as bank debt. Our conservative classification of private debt as bank sourced will most likely understate the importance of bank leverage within our findings, and bias against finding a significant relationship between existing bank leverage and CEO succession. Despite this, we have found an important monitoring role for banks in forced turnover and the likelihood of external CEO succession.

To further investigate this issue we re-estimate our regressions results for Tables 4 to 6 substituting private leverage and issuance for bank leverage and issuance. These results confirm our earlier findings for bank debt. In each case, forced CEO turnover is increasing in likelihood with existing private leverage, the sensitivity of forced turnover to firm performance is stronger for firms issuing private debt, and outside succession is more likely when firm borrow in private debt markets. The marginal effects for existing private leverage weaken slightly, but remain significant at the 10% level or better in all specifications. Our results for LOW IC as our firm performance measure are stronger than those reported in Table 5, suggesting private lenders monitor when new debt is issued irrespective of whether firms are also able to borrow publicly at the same time. All remaining coefficients for public leverage, CEO, and firm characteristics are unaffected by substituting private debt for bank debt measures in our analysis. Existing private

[8] All results from this section are available on request from the authors.

leverage has no effect on whether a successor CEO is appointed from outside the current management team, but again new issues of private debt are positively and significantly related to the incidence of outside succession. We also find no direct relationship between CEO succession decisions and non-bank private debt measures of leverage and new issuance.

We have defined leverage based on debt source divided by book value of total assets. However, market based leverage measures may be equally important in bank monitoring. As such, we re-estimate our empirical results using book value of debt divided by the sum of market value of equity, book value of debt, and book value of preferred stock as an alternative measure of leverage. Our results for both bank and private leverage hold when leverage is defined using market leverage ratios and all remaining firm and CEO characteristics retain their statistical significance. Consistent with Table 5, we find marginal evidence of a significant effect for public leverage interacted with ΔIROA, suggesting that public lenders may also increase the sensitivity of forced turnover to firm performance at the point when firms are forced to issue new debt, and supports Easterbrook (1984).

In our Tables 3 to 5 we do not consider the interaction between public or private leverage and firm performance when studying forced CEO turnover. We do this to avoid concerns over how to interpret the interaction to two continuous variables. In further testing we transform bank leverage to a series of dummy variables that can be interacted with firm performance to produce meaningful interpretation. We set dummy variables for bank and public leverage above the sample median. Following, Hadlock and James (2002) we also define a bank dependent dummy variable where bank debt to total debt is above the median ratio of 0.79 and the firm has no public debt outstanding. We find no evidence that these variables interact significantly with firm performance to increase the sensitivity of forced CEO turnover to performance. As such, we

conclude that existing bank debt is associated with higher rates of turnover, but is not effective in tying forced CEO replacement to firm performance.

Our findings highlight an important role for bank borrowing as a monitoring device. Close parallels may also been drawn with research on the maturity of leverage. Marchica (2008) finds that UK firms borrower for shorter maturities in comparison to US firms, which she attributes to the greater reliance on bank debt. Since bank debt is typically issued for shorter maturities (see Denis and Mihov, 2003), and debt maturity may be correlated with credit risk (see Barclay and Smith, 1995), our results may be driven by the maturity rather than source of leverage. To address this concern, we run separate analysis of CEO succession decisions with short- and long-term leverage ratios as explanatory variables. We use maturity of less than one year as a cut-off to define short-term debt. Data on the maturity of leverage is also hand collected from footnotes to the financial statements in annual reports. We find no evidence of a significant maturity effect in forced CEO turnover or external CEO succession decisions after controlling for debt source and the relationship between bank debt and forced turnover is unaffected by additional controls for the maturity structure of corporate debt. As such, it is the source rather than the maturity of leverage that matters for lender monitoring of UK firms.

Huson et al. (2001) note that CEO succession decisions are conditional on CEO turnover occurring. These authors recommend estimating succession regressions as the second stage of a bivariate probit model with selection. To address this concern, we re-estimate our results in Table 6 as a second stage model that is conditional of turnover occurring in the first instance.[9] All regression coefficients in our second stage regressions retain their sign and earlier statistical

[9] Our first stage turnover regression describes the probability of CEO turnover as a function of revenue, our new CEO dummy, CEO founder status, firm performance, and a CEO at retirement age dummy variable that is set equal to one if the incumbent CEO is over 58, and zero otherwise. This variable is designed to measure CEOs who reach normal retirement age. We find that TURNOVER is positively related to RETIRE and negatively related to NEW CEO and PERFORM.

significance; confirming that our results for external CEO succession are not due to model misspecification.

Lastly, we re-estimate our analysis to include a number of variables that have been found to be correlated with CEO turnover and outside succession decisions. We relate both decisions to director ownership, board size, the fraction of non-executive directors on the board, and variables proxying for institutional ownership (see Weisbach, 1988; Denis et al., 1997). We find that board structure and institutional ownership is unrelated to forced CEO turnover for our sample. We find some evidence that director ownership reduces the likelihood of forced turnover, but is unrelated to outside succession decisions. In each case, inclusion of these variables has no impact on the statistical significance of our leverage and debt issuance variables.

5. Conclusions

In this study we analyze the relationship between lender monitoring and CEO succession decisions for a sample of large non-financial firms from the FTSE 350 index of the London Stock Exchange. Prior research in this area has suggested that banks are unique or special as relationship lenders who have both an informational advantage and the financial incentive to actively monitor borrower firms. However, much of the empirical research on bank debt provides indirect evidence of monitoring through event studies of the stock price response to bank loan announcements for borrowing firms and analysis of the role of banks in providing access to funding for firms that are unable to borrow in public debt markets.

Our findings show that the likelihood of forced CEO turnover is increasing with the amount of bank leverage on the firm's balance sheet, but is unrelated to public leverage. Forced CEO turnover is more sensitive to cash flow measures of firm performance when the firm

announces a debt issue, but particularly so when the firm borrows from banks. Our sample firms are also more likely to appoint a new CEO from outside the company when they have announced a bank debt issue. We find no relationship between CEO succession and monitoring from public debtholders.

Collectively, our results complement research that indirectly supports a monitoring role for bank debt by providing new direct evidence on the relative efficacy of banks as monitors of borrower firms. By distinguishing between bank debt and public debt in analyzing the determinants of forced CEO turnover and external CEO succession we show that bank lenders are associated with a higher frequency of CEO succession decisions that are expected to lead to significant restructuring of poorly performing firms. Our study also contributes to corporate governance research on the importance and effectiveness of lender monitoring. Our finding that banks are more effective in monitoring than dispersed public bondholders suggests debt should not be treated as a single variable. In the same way that large shareholders and non-executive directors are frequently categorized by expected monitoring strength and independence from executive management, our findings suggest that bank debt should be separated from public bonds when studying the role of lenders in corporate governance.

Our findings also suggest some further avenues for future research. We argue that banks play an important monitoring role in UK firms given the comparatively weaker reliance on public bond markets in the UK relative to US capital markets. Analyzing the importance of lender monitoring in US firms where public debt plays a stronger role in corporate financing, or international comparisons with bank based economies such as Germany and Japan may provide further evidence on the relative importance of lender monitoring based on a country's financial system.

Understanding why poorly performing CEOs choose to borrow from banks represents a fruitful area for further research. Consistent with Franks et al. (2001) for seasoned equity offers, our study implies that firms are forced to borrow from banks to restructure their finances, and banks are able to remove a poorly performing CEO in exchange for new funding. Banks can hold power to force the firm into bankruptcy proceedings and/or can pressure the board of directors to dismiss poorly performing CEOs in exchange for renewed financing. Zwiebel's (1996) managerial entrenchment model of capital structure, where managers use debt to reduce external control threats, may offer some insight for future research in this area.

Moreover, a study of the implications of lender monitoring for shareholders and debtholders would be of interest. Corporate governance research inherently assumes that forced CEO turnover and external CEO succession should be value maximizing for shareholders. This outcome is not so obvious in lender initiated CEO replacements. If banks remove poorly performing CEOs and replace them with externally hired replacements, maximizing shareholder value may come second to maximizing creditor interests. Billett et al. (2006) find evidence of long-run underperformance for a large sample of borrower firms following bank loan announcements. These authors note that performance is most negative where banks are best protected through loan covenants, suggesting that poor future performance is not a surprise to the lending bank. As such, event studies of stock price and operating returns may yield incomplete conclusions as to how banks benefit from active monitoring of borrower firms.

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Table 1
Description of variables

Variable	Description	Source
Panel A: Firm and performance characteristics		
REVENUE	Real revenue expressed in 2000 £millions	Datastream
LEVERAGE	The ratio of book value of total debt divided by book value total assets	Datastream
DEBT ISSUE	A dummy variable set equal to 1 if the company issues debt and zero otherwise	Annual reports and Nexis UK
RETURN	The daily buy-and-hold return on the company's stock, including dividend payments, over the accounting year less the return on the FTSE-All Share Index over the corresponding period	Datastream
ΔIROA	The annual change in the ratio of earnings before interest, tax, depreciation and amortization (EBITDA) divided by book value of total assets minus the same ratio for the median Datastream firm in the same FTSE level three industry group as the sample firm	Datastream
LOW IC	A dummy variable set equal to minus one if the firm has an interest coverage ratio of less than 0.8 and zero otherwise. Interest coverage is calculated as EBITDA divided by interest expense. Firms with no debt outstanding are coded as zero	Datastream
Panel B: CEO and board characteristics		
TURNOVER	A dummy variable set equal to 1 if the CEO leaves their position and zero otherwise	Annual reports and Nexis UK
FORCED	A dummy variable set equal to 1 if the CEO is forced from office and zero otherwise	Annual reports and Nexis UK
OUTSIDE	A dummy variable set equal to 1 if the new CEO is appointed from outside the company and zero otherwise	Annual reports and Nexis UK
NEW CEO	A dummy variable set equal to 1 if the current CEO has been in office for less than twelve months	Annual reports and Nexis UK
FOUNDER	A dummy variable set equal to one if the current CEO is associated with the founding of the firm and zero otherwise	Annual reports and Nexis UK
TENURE	The number of years served as CEO	Annual reports
BOARD	The number of directors on the firm's board	Annual reports
FRACTION NED	The number of non-executive directors divided by the total number of directors on the firm's board	Annual reports
Panel C: Debt ownership characteristics		
PUBLIC LEVERAGE	The ratio of book value of total public bonds divided by book value of total assets	Annual reports and Datastream
BANK LEVERAGE	The ratio of book value of total bank debt divided by book value of total assets. Only private debt explicitly described as bank borrowings is classified as bank debt	Annual reports and Datastream
PUBLIC ISSUE	A dummy variable set equal to one if the firm issues public bonds and zero otherwise	Annual reports and Nexis UK
BANK ISSUE	A dummy variable set equal to one if the firm issues bank debt and zero otherwise	Annual reports and Nexis UK
PUBLIC ONLY	A dummy variable set equal to one if the firm issue public bonds and borrows from no other source during its financial year , and zero otherwise	Annual reports and Nexis UK
BANK ONLY	A dummy variable set equal to one if the firm borrows from a bank lender and no other source during its financial year and zero otherwise	Annual reports and Nexis UK

Table 2
Descriptive statistics for sample firms

Panel A: Firm characteristics	No. firm years	Mean	Median	St. Dev	Maximum	Minimum
ASSETS	2,095	2,619	668	9,462	169,964	11
REVENUE	2,064	2,043	724	3,915	37,917	2
LEVERAGE	2,095	0.2368	0.2059	0.2952	8.4853	0.0000
PUBLIC RATIO	2,095	0.2002	0.0000	0.3254	1.0000	0.0000
BANK RATIO	2,095	0.6363	0.7944	0.3856	1.0000	0.0000
PUBLIC LEVERAGE	2,095	0.0537	0.0000	0.1165	1.1193	0.0000
BANK LEVERAGE	2,095	0.1358	0.0833	0.1732	3.7733	0.0000
CEO TENURE	2,102	6.1633	4.0000	6.4197	49.0301	0.0000
BOARD	2,076	9.0270	9.0000	2.5322	21.0000	4.0000
FRACTION NED	2,076	0.5587	0.5714	0.1358	0.8889	0.0000

Panel B: CEO turnover variables	No. firm years	Number of events	Turnover rate
TURNOVER	2,035	308	0.1514
FORCED	2,035	87	0.0428
OUTSIDE	302	121	0.4007
NEW CEO	2,103	289	0.1374
FOUNDER	2,110	373	0.1768

Panel C: Debt issuance variables	No. firm years	Number of events	Issuance rate
DEBT ISSUE	2,105	675	0.3207
PUBLIC ISSUE	2,105	255	0.1211
PUBLIC ONLY	2,105	134	0.0637
BANK ISSUE	2,105	453	0.2152
BANK ONLY	2,105	342	0.1626
PRIVATE ISSUE	2,105	541	0.2570
PRIVATE ONLY	2,105	420	0.1995

This table reports descriptive statistics for a sample of non-financial FTSE-350 firms over the time period 2000-2008. ASSETS is the book value of total assets, expressed in 2000 £millions. PUBLIC RATIO and BANK RATIO are the ratios of balance sheet debt from public and bank sources to total debt respectively. Data on the source of the firm's debt is collected from the footnotes to annual reports. Note that there are six cases of CEO turnover where the firm is delisted before a replacement CEO is appointed, which results in 302 useable CEO succession events. For debt issuance variables, the postscript ONLY denotes that the firm borrowed from only the names source during any given financial year. All remaining variables are defined in Table 1.

Table 3
Probit estimates of forced CEO turnover determinants

	Firm performance measures:					
	RETURN		ΔIROA		LOW IC	
Model	(1)	(2)	(3)	(4)	(5)	(6)
LN_REVENUE	0.0002	-0.0001	0.0012	0.0013	0.0020	0.0019
	(0.0024)	(0.0023)	(0.0028)	(0.0027)	(0.0026)	(0.0026)
NEW CEO	-0.0177	-0.0165	-0.0203	-0.0183	-0.0214	-0.0210
	(0.0079)**	(0.0067)**	(0.0099)**	(0.0082)**	(0.0093)**	(0.0075)***
FOUNDER	-0.0245	-0.0220	-0.0288	-0.0238	-0.0248	-0.0206
	(0.0069)***	(0.0067)***	(0.0082)***	(0.0080)***	(0.0081)***	(0.0083)**
LN_TENURE	-0.0070	-0.0013	-0.0090	-0.0016	-0.0060	-0.0014
	(0.0057)	(0.0008)	(0.0069)	(0.0010)*	(0.0067)	(0.0009)
PERFORM	-0.0636	-0.0541	-0.0910	-0.0696	-0.0590	-0.0497
	(0.0109)***	(0.0121)***	(0.0268)***	(0.0230)***	(0.0098)***	(0.0109)***
LEVERAGE	0.0062	0.0050	0.0126	0.0143	0.0123	0.0120
	(0.0079)	(0.0079)	(0.0086)	(0.0080)*	(0.0081)	(0.0079)
DEBT ISSUE	-0.0010	-0.0034	-0.0021	-0.0083	-0.0045	-0.0114
	(0.0074)	(0.0085)	(0.0085)	(0.0080)	(0.0079)	(0.0087)
DEBT ISSUE x PERFORM		-0.0325		-0.1828		-0.0268
		(0.0389)		(0.0747)**		(0.0181)
Intercept	-1.7348	-1.7231	-2.1510	-2.2732	-2.5571	-2.5782
	(0.8107)**	(0.7765)***	(0.7881)***	(0.7668)***	(0.7992)***	(0.7710)***
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
LR statistic	73.57***	72.68***	55.30***	67.64***	82.17***	83.02***
Pseudo R^2	0.1134	0.1180	0.0738	0.0878	0.1024	0.1077
No. Observations	1,914	1,913	1,954	1,953	1,965	1,964

This table reports marginal effects from a probit model where Φ is the standard cumulative normal distribution, X_i is the vector of explanatory variables and β is the population vector to be estimated by maximum likelihood. The marginal effect of a regressor is given as the derivative of the probability of turnover with respect to an individual regressor and is calculated at the mean value of all continuous variables. For dummy variables, the marginal effect represents a discrete change in the dummy variable from zero to one. Our sample is drawn from non-financial FTSE-350 firms over the time period 2000 to 2008. PERFORM is firm performance measured using RETURN, ΔIROA and LOW IC. All remaining variables are defined in Table 1. Robust standard errors are reported in parenthesis. ***, **, and * denote the parameters are significant at the 1%, 5%, and 10% levels respectively.

Table 4
Probit estimates of forced CEO turnover determinants and lender monitoring

	RETURN		ΔIROA		LOW IC	
Model	(1a)	(2a)	(3a)	(4a)	(5a)	(6a)
LN_REVENUE	-0.0004	0.0000	0.0004	0.0009	0.0011	0.0016
	(0.0025)	(0.0023)	(0.0029)	(0.0028)	(0.0027)	(0.0027)
NEW CEO	-0.0178	-0.0177	-0.0205	-0.0204	-0.0215	-0.0214
	(0.0076)**	(0.0076)**	(0.0096)**	(0.0096)**	(0.0090)**	(0.0090)**
FOUNDER	-0.0246	-0.0247	-0.0293	-0.0294	-0.0257	-0.0257
	(0.0066)***	(0.0065)***	(0.0079)***	(0.0078)***	(0.0077)***	(0.0077)***
LN_TENURE	-0.0068	-0.0065	-0.0088	-0.0086	-0.0057	-0.0055
	(0.0056)	(0.0056)	(0.0068)	(0.0068)	(0.0064)	(0.0065)
PERFORM	-0.0620	-0.0623	-0.0879	-0.0880	-0.0574	-0.0577
	(0.0106)***	(0.0137)***	(0.0260)***	(0.0260)***	(0.0098)***	(0.0097)***
PUBLIC LEVERAGE	0.0180	0.0187	0.0228	0.0234	0.0151	0.0161
	(0.0279)	(0.0278)	(0.0339)	(0.0337)	(0.0325)	(0.0323)
BANK LEVERAGE	0.0319	0.0327	0.0343	0.0349	0.0315	0.0322
	(0.0131)**	(0.0119)***	(0.0153)**	(0.0154)**	(0.0144)**	(0.0144)***
PUBLIC ISSUE	0.0082		0.0085		0.0100	
	(0.0117)		(0.0138)		(0.0135)	
BANK ISSUE	0.0010		0.0014		-0.0023	
	(0.0078)		(0.0092)		(0.0084)	
PUBLIC ONLY		0.0088		0.0098		0.0083
		(0.0151)		(0.0179)		(0.0168)
BANK ONLY		-0.0022		-0.0018		-0.0064
		(0.0084)		(0.0100)		(0.0087)
Intercept	-1.6261	-1.7563	-1.9973	-2.1011	-2.3693	-2.4935
	(0.8405)*	(0.8279)**	(0.8223)**	(0.8074)***	(0.8315)***	(0.8256)***
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
LR statistic	85.90***	86.94***	63.91***	64.35***	88.50***	90.23***
Pseudo R^2	0.1178	0.1180	0.0772	0.0769	0.1050	0.1050
No. Observations	1,914	1,912	1,954	1,952	1,965	1,963

This table reports marginal effects from a probit model where Φ is the standard cumulative normal distribution, X_i is the vector of explanatory variables and β is the population vector to be estimated by maximum likelihood. The marginal effect of a regressor is given as the derivative of the probability of turnover with respect to an individual regressor and is calculated at the mean value of all continuous variables. For dummy variables, the marginal effect represents a discrete change in the dummy variable from zero to one. Our sample is drawn from non-financial FTSE-350 firms over the time period 2000 to 2008. PERFORM is firm performance measured using RETURN, ΔIROA and LOW IC. All remaining variables are defined in Table 1. Robust standard errors are reported in parenthesis. ***, **, and * denote the parameters are significant at the 1%, 5%, and 10% levels respectively.

Table 5
Probit estimates of forced CEO turnover and sensitivity of turnover to performance with lender monitoring

	RETURN		ΔIROA		LOW IC	
Model	(1a)	(2a)	(3a)	(4a)	(5a)	(6a)
LN_REVENUE	-0.0007	-0.0002	0.0011	0.0016	0.0012	0.0016
	(0.0024)	(0.0024)	(0.0029)	(0.0028)	(0.0027)	(0.0026)
NEW CEO	-0.0177	-0.0183	-0.0213	-0.0215	-0.0209	-0.0211
	(0.0074)**	(0.0073)**	(0.0091)**	(0.0090)**	(0.0089)**	(0.0087)**
FOUNDER	-0.0246	-0.0250	-0.0269	-0.0267	-0.0250	-0.0245
	(0.0063)***	(0.0063)***	(0.0080)***	(0.0079)***	(0.0076)***	(0.0075)***
LN_TENURE	-0.0068	-0.0065	-0.0092	-0.0090	-0.0055	-0.0055
	(0.0054)	(0.0054)	(0.0066)	(0.0065)	(0.0064)	(0.0063)
PERFORM	-0.0542	-0.0568	-0.0730	-0.0730	-0.0543	-0.0480
	(0.0112)***	(0.0111)***	(0.0233)***	(0.0231)***	(0.0107)***	(0.0103)***
PUBLIC LEVERAGE	0.0210	0.0218	0.0219	0.0216	0.0120	0.0169
	(0.0273)	(0.0275)	(0.0337)	(0.0334)	(0.0333)	(0.0325)
BANK LEVERAGE	0.0304	0.0335	0.0309	0.0327	0.0316	0.0311
	(0.0132)**	(0.0132)**	(0.0148)**	(0.0149)**	(0.0143)**	(0.0143)**
PUBLIC ISSUE	0.0001		0.0128		0.0205	
	(0.0124)		(0.0148)		(0.0166)	
BANK ISSUE	0.0013		-0.0049		-0.0105	
	(0.0089)		(0.0088)		(0.0089)	
PUBLIC ONLY		-0.0027		0.0139		0.0078
		(0.0180)		(0.0189)		(0.0183)
BANK ONLY		-0.0024		-0.0091		-0.0204
		(0.0096)		(0.0094)		(0.0086)**
PUBLIC ISSUE x PERFORM	-0.0725		-0.1209		0.0336	
	(0.0473)		(0.0811)		(0.0268)	
BANK ISSUE x PERFORM	-0.0041		-0.2125		-0.0294	
	(0.0402)		(0.0808)***		(0.0201)	
PUBLIC ONLY x PERFORM		-0.1027		-0.2275		0.0005
		(0.0797)		(0.0964)**		(0.0337)
BANK ONLY x PERFORM		-0.0027		-0.2307		-0.0517
		(0.0468)		(0.0890)***		(0.0226)**
Intercept	-1.5079	-1.6859	-2.1377	-2.2723	-2.4028	-2.4865
	(0.8380)*	(0.8216)**	(0.8360)**	(0.8173)***	(0.8369)***	(0.8272)***
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
LR statistic	90.73***	92.71***	76.75***	79.12***	92.79***	93.13***
Pseudo R^2	0.1240	0.1239	0.0896	0.0914	0.1099	0.1124
No. Observations	1,914	1,912	1,954	1,952	1,965	1,963

This table reports marginal effects from a probit model where Φ is the standard cumulative normal distribution, X_i is the vector of explanatory variables and β is the population vector to be estimated by maximum likelihood. The marginal effect of a regressor is given as the derivative of the probability of turnover with respect to an individual regressor and is calculated at the mean value of all continuous variables. For dummy variables, the marginal effect represents a discrete change in the dummy variable from zero to one. Our sample is drawn from non-financial FTSE-350 firms over the time period 2000 to 2008. PERFORM is firm performance measured using RETURN, ΔIROA and LOW IC. All remaining variables are defined in Table 1. Robust standard errors are reported in parenthesis. ***, **, and * denote the parameters are significant at the 1%, 5%, and 10% levels respectively.

Table 6
Probit model for determinants of external CEO succession

	RETURN		ΔIROA		LOW IC	
Model	(1)	(2)	(3)	(4)	(5)	(6)
LN_REVENUE	-0.0017	0.0011	-0.0025	0.0008	0.0092	0.0123
	(0.0258)	(0.0250)	(0.0258)	(0.0251)	(0.0263)	(0.0255)
FORCED	0.3181	0.3220	0.3000	0.3042	0.3199	0.3244
	(0.0701)***	(0.0694)***	(0.0687)***	(0.0681)***	(0.0703)***	(0.0694)***
BOARD	0.0017	0.0022	0.0035	0.0039	-0.0025	-0.0021
	(0.0155)	(0.0155)	(0.0156)	(0.0156)	(0.0157)	(0.0157)
FRACTION NED	0.6631	0.6208	0.6973	0.6532	0.6666	0.6271
	(0.2361)***	(0.2360)***	(0.2379)***	(0.2369)***	(0.2354)***	(0.2349)***
PERFORM	-0.0627	-0.0573	-0.3675	-0.3392	-0.0351	-0.0269
	(0.0849)	(0.0830)	(0.2127)*	(0.2071)	(0.0831)	(0.0809)
PUBLIC LEVERAGE	-0.3281	-0.3298	-0.2804	-0.2871	-0.3556	-0.3592
	(0.2887)	(0.2861)	(0.2851)	(0.2850)	(0.2909)	(0.2876)
BANK LEVERAGE	-0.2614	-0.2544	-0.2805	-0.2729	-0.2665	-0.2624
	(0.2252)	(0.2211)	(0.2298)	(0.2254)	(0.2280)	(0.2241)
PUBLIC ISSUE	-0.1051		-0.1010		-0.1018	
	(0.0833)		(0.0837)		(0.0846)	
BANK ISSUE	0.2506		0.2600		0.2605	
	(0.0738)***		(0.0743)***		(0.0738)***	
PUBLIC ONLY		-0.1123		-0.1089		-0.1070
		(0.1097)		(0.1101)		(0.1097)
BANK ONLY		0.1766		0.1847		0.1917
		(0.0830)**		(0.0835)**		(0.0829)**
Intercept	-1.3539	-1.4099	-1.4184	-1.4903	-1.8672	-1.9304
	(1.2690)	(1.2369)	(1.2852)	(1.2522)	(1.2945)	(1.2595)
LR statistic	43.27***	37.38***	41.43***	36.66***	42.26***	37.11***
Pseudo R^2	0.1194	0.1028	0.1241	0.1067	0.1225	0.1055
No. Observations	288	288	288	288	289	289

This table reports marginal effects from a probit model where Φ is the standard cumulative normal distribution, X_i is the vector of explanatory variables and β is the population vector to be estimated by maximum likelihood. The marginal effect of a regressor is given as the derivative of the probability of turnover with respect to an individual regressor and is calculated at the mean value of all continuous variables. For dummy variables, the marginal effect represents a discrete change in the dummy variable from zero to one. Our sample is drawn from non-financial FTSE-350 firms over the time period 2000 to 2008. PERFORM is firm performance measured using RETURN, ΔIROA and LOW IC. All remaining variables are defined in Table 1. Robust standard errors are reported in parenthesis. ***, **, and * denote the parameters are significant at the 1%, 5%, and 10% levels respectively.