Lame Duck CEOs' Horizons: Evidence from CEO Retirement and Loan Maturity

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Abstract

CEOs who know they will leave office in the near future are likely to have shorter horizons than other CEOs, and thus are likely to focus on short-term payoffs or decrease their effort. To detect shorter horizons, I focus on the maturities of firms' new loans, since this decision has an observable time dimension. I find that as CEOs approach retirement, maturities of new loans shorten, but are just long enough for more loans to mature soon after CEOs retire. The shorter maturities lead to lower loan spreads. Departing CEOs appear to care less about firms' refinancing risk after their departure, but more about interest savings before their departure. I also find that firms near CEOs' retirement decrease acquisitions. Such firms also hold more cash, presumably due to fewer activities requiring liquidity and CEOs' effort before retirement. Results on loan maturities, acquisitions and cash all hold, when instrumenting for CEOs' departure using departure probabilities based on industry and CEOs' age.

Key words: lame duck CEO, CEO horizon, CEO retirement, loan maturity, acquisition, cash holding

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1. Introduction

Most CEOs serve for relatively short periods of time, with a median tenure for CEOs of large, public US firms of just six years.[1] Moreover, while some CEOs are forced out of their jobs, most of the time, the timing of their departures is known in advance.[2] For a CEO whose departure is planned, there is a substantial "lame duck" period in which the CEO knows she will be leaving soon. If, for example, this period lasts for a year and a half prior to turnover, then it would constitute 25% of the average CEO's tenure, which is also a substantial fraction of a firm's existence. CEOs are presumably motivated in part by the desire not to be fired and by future career concerns. Being a lame duck, a CEO may be less motivated by these reasons. Thus, it is possible that CEOs will change their decision-making in the lame duck period. If so, it is important to understand the way in which the lame duck portion of the "CEO cycle" influences corporate policies.

Theoretically, it is not clear how being a lame duck will affect a CEO's decision-making. The first hypothesis is that there could be no impact, if the CEO always maximizes shareholder value or compensation packages offset any changes in incentives due to lame-duck status (Gibbons and Murphy 1992a). Second, the shorter horizons of lame duck CEOs could provide incentives that exacerbate existing agency problems. CEOs could seize the final opportunity for empire building (to leave behind a legacy of a busy career) or taking private benefits in another manner, since they may worry less about firms' performance after their departure.

[1] The figure is computed using CEOs who took office after 1992 and left office before 2017, from the *ExecuComp* dataset.
[2] See Vancil (1987, p.82–83) and Taylor (2010).

The third hypothesis is that lame duck CEOs could reduce their effort, as the Holmstrom (1999) model predicts, since their incentives to influence the market learning about their ability diminish near the end of their career. In addition, they potentially could forgo projects with long-term payoffs and focus on projects with short-term payoffs. There could be additional potential effects of a CEO being a lame duck. Understanding which effects dominate is an empirical issue. In this paper, I focus on testing the third hypothesis. The results speak indirectly to the two other hypotheses listed above.

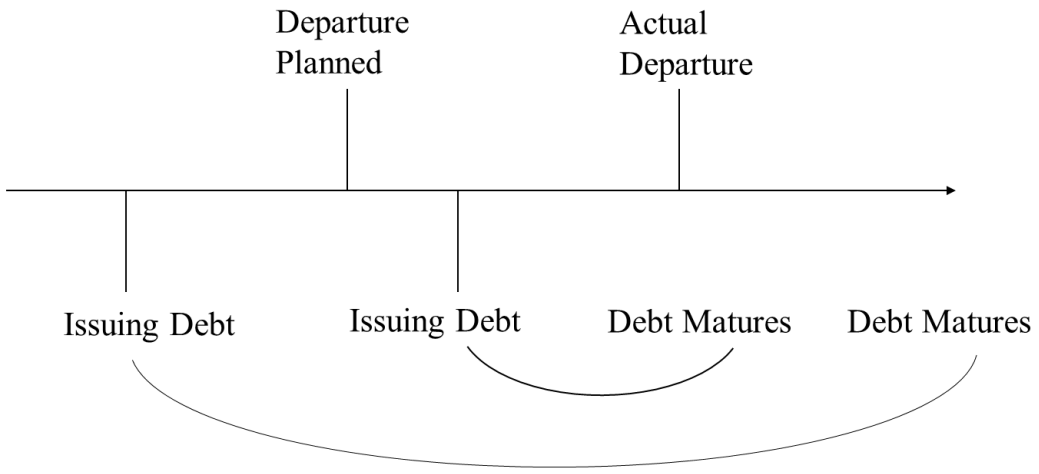
Unfortunately, researchers do not accurately observe which CEOs planned for their departure and left voluntarily. To isolate the effect of a planned departure on CEOs' actions, I focus on CEO departures that are likely due to natural retirement. Since retirement cannot be precisely identified, I classify departures as likely due to retirement in two ways: first, the CEO departs at the age of 64-66 (following e.g., Warner, Watts and Wruck 1988, Weisbach 1988 and Jenter and Lewllen 2015[3]); second, the CEO departs beyond the age of 64. For brevity, I often refer to departures that are likely due to retirement simply as retirement, and the other CEO departures as non-retirement.

In addition, I also use an instrumental variable approach to predict CEO's impending departure. The instrument is the industry-specific CEO departure probability based on CEOs' age. The median age across industries at which this probability is at its peak is 65. The variation in the industry-specific departure probability over CEO age reflects industry-specific variation in the retirement norms over CEO age.

[3] Cline and Yore (2016) find that 19% of *ExecuComp* firms have mandatory CEO retirement polices set almost uniformly at age 65.

I examine the effect of having retiring CEOs in a sample of 2,955 CEOs from 2,235 large publicly-traded U.S. firms from 1992 to 2016. I consider decisions potentially influenced by the shorter horizons of retiring CEOs and compare them to decisions made under other CEOs. Specifically, I consider the maturity of loans that firms take out, the extent to which firms make acquisitions, and their cash holdings.

How can the maturity of newly-issued loans potentially reflect the incentives of a lame duck CEO? The graph below helps illustrate why a CEO may prefer shorter loan maturities more as she approaches retirement. Before a CEO plans her departure, she may take out loans of longer maturity (rather than shorter maturity), so that when the loans mature, she is more likely to be no longer in the office. Thus, she can avoid being responsible for refinancing the loans or paying back the principals. Given that the median loan size in my sample is $250M and 9.9% of firm's assets, refinancing or paying back the principals is a not trivial matter. After the CEO makes her departure plan, she can take out shorter-term loans that mature soon after her departure. As she gets closer to her departure, the advantage of longer-term loans (e.g. avoiding refinancing risk) diminishes for her. At the same time, the potential benefits of shorter-term loans (e.g. lower loan spreads to boost firm performance and her pay, and easier negotiation) become relatively more attractive. The CEO's horizon can be seen as shorter, as she cares less about the longer-term benefits for the firm that will realize after her departure, but more about shorter-term benefits (e.g. better accounting performance through lower interests, and reduced effort).



I find that the average maturity of new loans declines as CEOs approach likely retirements. Additional results related to loans are also consistent with the hypothesis that lame duck CEOs have shorter horizons. First, when there is an heir apparent successor, the maturity of new loans does not decrease. The reason can be that the successor is involved in the loan negotiations, mitigating the retiring CEO's short-horizon problem.

Second, if the CEO has high stock ownership of the firm, new loan maturities do not decrease as she approaches retirement. Presumably, higher ownership aligns the CEO's interests better with shareholders'. Thus, as she is about to leave the decision power to someone else, the CEO might negotiate loan contracts to be more favorable for shareholders. Longer maturity may be more favorable for shareholders as the firm may face more costly debt financing with a new CEO (Pan, Wang and Weisbach 2017, Karolyi 2017).

Third, soon after a CEO's likely-retirement departure, more loans initiated during her tenure come due, compared to after other departures. This result suggests that retiring CEOs are able to avoid facing the maturing of more loans while they are in office, compared to CEOs who departed without advanced planning.

Consistent with CEOs' shorter horizons near retirement, I also find that firms with CEOs near retirement cut acquisition activities. Such firms also hold more cash, potentially due to decreased activities that require liquidity and CEOs' effort before retirement but might pay off after CEO retirement.

There is an endogeneity concern. Among the CEO departures I classify as likely retirements, some could be due to performance. Poor performance can cause CEOs to be fired or leave voluntarily, and also make lenders less willing to give a long-maturity loan. Thus, the association between CEOs' lame duck status and loan maturities could be due to poor firm performance. To evaluate whether poor performance causes a spurious correlation between CEOs' impending departure and loan maturities, I compare retirements with non-retirement departures. Using different measures, I find that firm performance on average deteriorates before non-retirement departures, but not before retirements. If poor performance leads to CEO departure and shorter new loan maturity, then the decline in maturity should be more prominent in the non-retirement sample than the retirement sample. However, I find that loan maturities shorten by less before non-retirement departures than before retirements. Thus, poor performance unlikely drives shorter loan maturity before CEO retirements.

To further address the endogeneity concern, I use an instrumental variable approach. For the dummy variable, *1 Year to CEO Depart* (the year before CEOs' actual departure), I construct an instrument using industry-specific probability of departure in one year based on the age of the CEO. The result using the instrumental variable approach is consistent with the OLS result: firms initiate new loans with shorter maturity as CEOs approach departures predicted by the instrument.

By taking out loans of shorter maturities near CEO retirement, a major cost to the firm is higher refinancing risk, which will be borne by the successor. How do CEOs benefit from loans with shorter maturities before retirement? One potential benefit is that CEOs need to put in less effort in negotiating the loan. Another benefit to CEOs is that by using shorter maturities, firms save on interest payments and have better accounting performance, which can increase CEOs' pay, pension (often a function of their last several pay, Sundaram and Yermack 2007), and chances to serve on boards (Brickley, Linck and Coles 1999). Indeed, I find that shorter loan maturity associated with CEOs' impending retirements leads to lower promised yields on loans.

There could be alternative explanations for the decline in new loan maturity before CEOs' retirement. One explanation could be that as the CEO approaches retirement, the present value of her pension grows (Sundaram and Yermack 2007). The decline in new loan maturity could be driven by the growing inside debt. The second alternative hypothesis is that CEOs near retirement want to leave flexibility to their successors when structuring loan contracts. By initiating shorter-term loans, the succeeding CEO can structure new loan contracts as she prefers soon after taking office. The third alternative hypothesis is that as the CEO is about to retire, lenders fear uncertainty about the incoming CEO and thus shorten the loan maturity. I present evidence that does not support these alternative hypotheses. For example, not supporting the hypothesis about succeeding CEOs' uncertainty, more financially constrained firms do not shorten loan maturity, and new loans do not have more new lenders or more covenants before CEO retirements.

This paper offers a number of implications. First, I offer evidence for the hypothesis that CEOs have shorter horizons as they approach planned departure. To test this hypothesis, some papers examine firms' investment behavior before CEO retirement. Most notably, Dechow and

Sloan (1991) find that firms spend less on R&D before departure, especially before retirement. However, this finding is sensitive to model specification and sample construction (Gibbons and Murphy 1992b). Similarly, Murphy and Zimmerman (1993) do not find evidence that retiring CEOs exhibit shorter horizons. As CEOs approach retirement and potentially have shorter horizons, Gibbons and Murphy (1992b) hypothesize that CEOs may invest more in projects with more immediate payoffs. However, researchers cannot observe the timing of individual projects' cash flows. Debt maturity offers a perspective on whether lame duck managers shorten their horizons, since it is a decision with a clear time dimension and firms often match debt maturity with projects' cash flow timing (Myers 1977). Moreover, optimal debt maturity should not change around CEO retirement, according to classical theories on debt maturity (e.g. Diamond 1991). My results on the maturity of new loans are consistent with the hypothesis that lame duck CEOs have shorter horizons.

Jenter and Lewellen (2015) find evidence for shorter horizons near CEO retirement. When CEOs are close to age 65, firms are more likely to receive a successful takeover bid. They argue that as CEOs are closer to retirement, their private costs of the firm being taken over decline, which drives up the probability of being taken over closer to optimal. This paper offers a different perspective on CEOs' shorter horizons near retirement. I find in the last year before retiring, if the CEO has higher stock ownership, new loans have longer maturity, compared to if the CEO has lower stock ownership. This result suggests that the shorter loan maturity and the shorter horizons near the retirement of an average CEO are unlikely more optimal for shareholders.

Second, this paper adds to the evidence on CEOs' importance on firm behavior. Numerous studies suggest CEO characteristics and compensation affect firm behavior. One

relevant strand in this literature examines how top managers' characteristics, tenure or compensation features affect firm debt contracts without focusing on debt maturity (e.g., Bertrand and Schoar 2003, Lewellen 2006, Anantharaman, Fang, and Gong 2013, Chen et al 2016, Pan, Wang and Weisbach 2017, Karolyi 2017). This paper offers the new insight that CEOs' lame duck status can also affect firms' debt contract. Another relevant strand literature examines how CEO age affects firm behavior suggesting that older CEOs' have shorter horizons or weaker career concerns (e.g. Yim 2013, Serfling 2014, Li, Low and Makhija 2014, Jenter and Lewellen 2015). Controlling for observable CEO characteristics including age, tenure and compensation features, my results indicate that CEOs' lame duck status has a distinct effect on firm behavior.

The third implication is on the effects of CEOs' incentives on debt maturity. Debt maturity is an important dimension of firms' capital structure (Myers 1977). The literature has not well explored how managers' incentives can affect debt maturities, with three exceptions. Brockman, Martin and Unlu (2010) study how executive compensation influences debt maturity. Datta, Datta and Raman (2005) find that top managers' ownership affects debt maturity. Dang and Phan (2016) studies how CEOs' inside debt relates to firms' debt maturity. This paper suggests that CEOs' lame duck status can also affect debt maturity.

The paper proceeds as follows. Section 2 details the identification strategy. Section 3 describes the data. Section 4 provides results on CEOs approaching departure and new loans maturity and pricing. Section 4 also presents evidence against alternative explanations for the shortening of new loan maturity before CEO retirement. Sections 5 and 6 present results indicating that firms decrease acquisition activities and increase cash holdings before CEO retirement, respectively. Section 7 concludes.

2. Identification

2.A. Retirement vs. Non-retirement Subsamples

This paper studies how an imminent CEO departure affects firms' decisions, in particular loan maturity. Because CEOs can depart as a result of firing, reasons behind firing can affect firms' actions (e.g. new loan maturity), as well as CEO departures. Thus, I focus on CEO departures that are due to retirement. However, researchers cannot precisely tell which CEO departures are retirements. Thus, I identify some CEO departures as likely-retirement departures based on CEO age at departure. Among the likely-retirement departures, some will be due to firing. For identification, I study how firms' actions change before CEOs' departure, and compare the change between departures more likely due to retirement and those less likely due to retirement.

In an ideal experiment, I would have a randomly selected treatment group and a control group. The only difference between the two groups should be that treated CEOs know that they will leave office soon, and the control CEOs do not know when they will leave office. However, between my retirement and non-retirement sample, there are more differences than this desired one. First, CEOs who likely retired may have better performance than CEOs departed unlikely due to retirements, since the latter are more likely fired due to poor performance. If shortening loan maturity were due to reasons also driving firing (e.g., poor performance), we would expect non-retirement CEOs to shorten loan maturity before the departure. If loan maturity do not shorten more (or shorten by less) in the non-retirement sample than those in the retirement sample, the shorter maturity before CEO retirements is unlikely due to reasons driving firing.

The second additional difference is that between the retirement and non-retirement CEOs the retirement CEOs on average are older than the non-retirement CEOs. To control for the effect of age, I always control for CEOs' age. Besides, in robustness checks, I exclude all CEOs younger than 60. The third additional difference is that as CEOs approach retirement, the present value of their pension increases (Sundaram and Yermack 2007). Dang and Phan (2016) find that CEOs' inside debt is positively related to firms' short-maturity debt. The fourth additional difference is that lenders can more easily predict the impending departure of a CEO near a conventional retirement, and can demand shorter loan maturity due to the impending CEO turnover. In Section 4.F., I address the alternative explanations due to the third and fourth undesired differences between the retirement and non-retirement CEOs.

I identify whether a CEO departure is likely due to retirement, using CEO age at departure. My identification strategy depends on that the likely retirement sample contains fewer firings than the less likely retirement sample. Figure 1 shows the probability of the CEO leaving office at age *n* or *n+1*, conditional on the CEO reaching age *n* while in office. Based on the graph, CEOs aged 64 or older are among the most likely to leave the office. The most plausible reason is that these older CEOs are more likely to retire (rather than more likely fired), compared to CEOs of other age. Following the literature, I classify a departure as retirement if the CEO leaves at the age of 64-66, and non-retirements otherwise. As an alternative, I identify a departure as retirement if the CEO departs at age 64 or older, and non-retirement otherwise.

2.B. Instrumental Variable Approach

One may have the following concern. It is possible that CEOs who took out short-term loans later chose to leave before a large amount of debt is about to mature, and they are more

likely to do so if they are older. Thus, changes in new loan maturities under an older CEO may not be a result of the imminent CEO departure, but a cause of CEO departure.

To address the concern above, as well as the endogeneity concern with regard to poor firm performance, I instrument for the dummy variable *1 Year to CEO Depart* (the fiscal year before CEOs' actual departure), using industry-specific departure probability based on CEO age. To the extent that the age-based departure probability reflects tendency to retire, the second stage thus studies the change in firm behavior associated with CEO's impending departure due to the industry-specific CEO retirement norms.

3. Data

3.A. Data on CEOs

Data on CEOs are from *ExecuComp*. I include CEOs who took office since the beginning of 1992. I exclude CEOs who are in office at the end of 2016, as well as financial and utility firms. I also exclude firm-fiscal year observations, during which CEO turnover happened. Panel A in Table 1 provides summary statistics of CEO age at departure and CEO total tenure of the retirement and non-retirement subsamples. As the table shows, CEOs in the retirement sample on average stay in office one to two years longer than other CEOs.

As mentioned earlier, I use industry-specific CEO departure probability based on CEO age to instrument for the dummy variable *1 Year to CEO Depart*. In each industry, for CEOs at the age of *n*, the instrument equals the number of CEOs leaving at age *n* or *n+1* as a percentage of the number of CEOs who ever reached age *n* in office. If there is only one CEO at a certain age in a certain industry, the departure probability of that age in that industry is set to be missing.

Panel B in Table 1 provides summary statistics of the instrument. The median age across industries at which this probability is at its peak is 65, the mean is 64.23. Panel C provides summary statistics on other control variables about CEO.

3.B. Data on Loans

Data on loans are obtained from *Dealscan*. I use the borrower linking table from Mike Schwert (2017), which extends that provided by Chava and Roberts following Chava and Roberts (2008). I also use the lender link table provided by Schwert (2017).[4] Panel D of Table 1 offers summary statistics of individual loans in the sample, matched to data on CEOs. The mean maturity is four years, and median five years. The mean size of loans is $564M, and the median $250M. Panel E provides firm-fiscal year-level summary statistics on new loans. Mean average maturity is 3.7 years, and median 4.0 years. The number of new loans at the firm-fiscal year level has a mean of 2.5, and median of one. Total size of new loans at the firm-year level has a mean of $1,432M, and a median of $500M.

3.C. Data on M&A

Data on acquisitions are from SDC. In the regressions I present, I include completed deals with size larger than 5% of the acquirers' lagged assets. I also conduct robustness checks with 1% and 10% as size cutoff points. The results are similar.

3.D. Data on Firm Financials

Firms' financial data are from *Compustat*. Data on stock returns are from *CRSP*. I include observations with CEOs covered in *ExecuComp*. Panel A in Table 1 tabulates the summary

[4] I am grateful to Sudheer Chava, Michael Roberts, and Mike Schwert for their generosity for making the data available.

statistics for firms' financials. As pointed out in the previous section, identification requires that CEOs in the retirement sample are less likely fired than those in the non-retirement sample. One way to test this is to look at firm performance in the fiscal year before CEO turnover, and compare it with the earlier years of CEO tenure. I conduct such comparison separately in the retirement and non-retirement subsamples. The financial variables are all demeaned at the annual level first. The results are presented in Table 2.

Panels A and B use different definitions of likely retirement. The first row in each panel shows the difference between last year and the earlier years of CEO tenure in the retirement subsample, and the second row that in the non-retirement subsample. The first row in each panel suggests that in the last fiscal year before CEOs' likely retirements, firm performance does not deteriorate. The second row in each panel suggests that, in the last year before CEOs' non-retirement departure, firm performance is worse than earlier in CEOs' tenure in terms of change in ROA, industry-adjusted stock returns, Q and cash flow. The last row in each panel provides the difference between the first two rows. The differences between the two subsamples are statistically significant in stock returns, Q, cash flow and sales, suggesting that firm performance worsens more before non-retirement CEO departures than before CEO retirements.

4. Maturity and Pricing of News Loans before CEO Retirement

4.A. Firm-Year Average Maturity of New Loans before CEO Retirement

4.A.1. OLS Regression

As CEOs approach retirement, the advantage of longer-maturity loans for CEOs diminishes. Thus, CEOs may shorten the maturities of new loans. This subsection tests this main hypothesis of the paper.

First, I test whether average maturity of new loans at the firm-year level decreases as CEOs are about to retire, with the following specification.

$$Avg\ New\ Loan\ Maturity_{i,t} = \beta_1 \cdot Years\ to\ CEO\ Depart\ (3 \rightarrow 1)_{i,t} + \beta_2 \cdot Years\ to\ CEO\ Depart\ (3 \rightarrow 1)_{i,t} \cdot NonRetire_{i,j} + \beta_3 \cdot NonRetire_{i,j} + \lambda_1 \cdot CEO\ Age_{i,t} + \lambda_2 \cdot CEO\ Tenure_{i,t} + \gamma \cdot Other\ Controls_{i,t-1} + FE_i + FE_t + \epsilon_{i,t}, \quad (1a)$$

where *i* indexes the firm, *t* the calendar year and *j* the CEO in office during the fiscal calendar year *t*. $Avg\ New\ Loan\ Maturity_{i,t}$ is the average maturity of new loans taken out by firm *i* in fiscal year *t*. $Years\ to\ Depart\ (3 \rightarrow 1)_{i,t}$ equals three if the CEO for firm *i* in calendar year *t* leaves office in fiscal year *t+3* or later; it equals two if the CEO leaves in fiscal year *t+2,* and one if the CEO leaves in fiscal year *t+1*. Thus, this variable declines from three to one as the CEO approaches departure. Again, any firm-fiscal year with a CEO turnover is excluded. $NonRetire_{i,j}$ equals one if the CEO is in the less-likely-retirement sample, and zero otherwise. FE_i is a vector of firm fixed effects, and FE_t calendar-year fixed effects.

Columns (1) and (2) in Table 3 Panel A show the results. In Column (1), $NonRetire$ dummy equals one if CEO leaves office before age 64 or after 66, zero otherwise. The

coefficient on $Years\ to\ CEO\ Depart\ (3 \rightarrow 1)_{i,t}$, β_1, is 0.28 and statistically significant. The estimate suggests, as CEOs get closer to retirements ($Years\ to\ CEO\ Depart(3 \rightarrow 1)$ declines from three to one), the average maturity of new loans declines by 0.56 years (0.28*2) or 6.48 months, 33.33% of the standard deviation (1.68 years). In Column (2), I define $NonRetire$ dummy in an alternative way, equal to one if CEO leaves office before age 64, zero otherwise. The results are similar to Column (1). β_1 is again positive, 0.21, and statistically significant.

If the reduction in loan maturity is solely related to CEO firings, since the non-retirement CEOs are more likely fired, new loan maturities should shorten more in the non-retirement subsample. In other words, β_2, the coefficient on $Years\ to\ CEO\ Depart\ (3 \rightarrow 1) \cdot NonRetire$, should be positive. However, β_2 is negative in both Columns (1) and (2), suggesting that new loan maturities do not decline more in the non-retirement sample where firing is more likely. Therefore, the decline in loan maturities in the retirement sample is unlikely due to reasons driving CEO firings. [5]

Columns (1) and (2) in Panel A of Table 3 capture the slope of how new loan maturities change from three or more years to one year before CEO departure. How do the average maturity of new loans initiated in the year before CEO retirement compare to those initiated earlier? In Columns (3)-(4), I replace $Years\ to\ Depart\ (3 \rightarrow 1)$ in Equation (1a) with a dummy variable, $1\ Year\ to\ CEO\ Depart$, which equals one in the fiscal year before the fiscal year of CEO departure, and zero otherwise:

[5] In Table A2 in Appendix A, I re-estimate Equation (1) by replacing the dummy NonRetire with the dummy Retire, which equals one if the CEO is in the retirement sample, zero otherwise. Results suggest that the decline in loan maturity prior to non-retirement departures is also statistically significant. One likely explanation is that poor performance drives both shorter new loan maturities and the CEO departure. Another likely explanation is that some of the CEOs in the less-likely-retirement sample also planned for their departure in advance, and their lame duck status results in the shorter loan maturity.

$$Avg\ New\ Loan\ Maturity_{i,t} = \beta_1 \cdot 1\ Year\ to\ CEO\ Depart_{i,t} + \beta_2 \cdot 1\ Year\ to\ CEO\ Depart_{i,t} \cdot NonRetire_{i,j} + \beta_3 \cdot NonRetire_{i,j} + \lambda_1 \cdot CEO\ Age_{i,t} + \lambda_2 \cdot CEO\ Tenure_{i,t} + \gamma \cdot Controls_{i,t-1} + FE_i + FE_t + \epsilon_{i,t}, \quad (1b)$$

The estimated coefficient on $1\ Year\ to\ CEO\ Depart$ suggests that average new loan maturity in the year before CEOs' likely retirement is statistically significantly shorter than loans initiated earlier, by 0.57 year in Column (3) or 0.37 year in Column (4). Columns (5)-(8) in Panel A repeat (1)-(4), replacing the dependent variable with loan size-weighted average maturity of new loans. The results are similar.

Panel B of Table 3 shows robustness checks. Column (1) estimates Equation (1a) without controls. Column (2) adds controls in addition to those in Panel A: CEO delta, vega and top managers' ownership, following Brockman, Martin and Unlu (2010) and Datta, Datta and Raman (2005). Columns (3) and (4) use $1\ Year\ to\ CEO\ Depart$, instead of $Years\ to\ CEO\ Depart$ $(3 \rightarrow 1)$. (5) replaces firm fixed effects in (4) with firm-CEO fixed effects. The statistical significance of the coefficient on $1\ Year\ to\ CEO\ Depart$ declines, which could be due to effectively losing the firm-CEO pairs that only initiated one loan. (6) only includes CEOs with total tenure of four years or longer. (7) only includes CEOs of age 60 or older. Result being similar to (4) indicates that the decline in loan maturity before CEO retirement is unlikely due to that retiring CEOs are older than other CEOs. In (8), dummy *NonRetire* equals one if the firm has a CEO mandatory retirement policy, and the CEO retired

within one year of the specified age, based on data from Cline and Yore (2016).[6] (9) only includes CEOs who eventually left between 64 and 66.

Note that among Columns (3) though (8), four of the six coefficients on $1\,Year\ to\ CEO\ Depart \cdot NonRetir$ are positive and statistically significant, suggesting that new loan maturity declines by less before CEOs' departures that are less likely due to retirement. Results in Panel B suggest that as CEOs approach retirement, maturities of new loans decline.

4.A.2. Instrumental Variable Regression

One endogeneity concern is that firms' poor performance causes the CEOs to be fired and also causes the lenders to restrict the loan maturity. Another endogeneity concern is that CEOs who happen to take out shorter-maturity loans may decide later to leave office, potentially to avoid facing the maturing of loans, and they are more likely to do so when they are older. Thus, shorter maturity is a cause, instead of a consequence of CEO retirements. To address this concern, I re-estimate Equation (2), by instrumenting the dummy variable, $1\,Year\ to\ CEO\ Depart$, with the probability of CEO departure based on industry and CEO age, $CEO\ Depart\ Probability$. The instrumental variable, $CEO\ Depart\ Probability$, reflects different CEO retirement norms in different industries, but should not be otherwise related to CEOs' preferences for loan maturity. However, the exclusion assumption could be violated. I discuss them in Section 4.F.

Column (1) in Table 4 presents the first-stage result, using $CEO\ Depart\ Probability$ to predict $1\,Year\ to\ CEO\ Depart$. The coefficient on $CEO\ Depart\ Probability$ is positive and statistically significant, and the Cragg-Donald Wald F statistic is 52.9 much higher than the

[6] I am grateful to Brandon Cline and Adam Yore for their generosity for sharing the data. Their data cover until 2006. I assume that after 2006, the CEO mandatory retirement policies stayed the same for each company.

Stock and Yogo (2005) threshold. Column (2) offers the second-stage result. In Column (2), the coefficient on 1 $Year\ to\ CEO\ Depart$ is negative and statistically significant, suggesting the impending departure related to CEOs' departure probability based on age leads to shorter maturity of new loans. Column (2) suggests that in the last year before CEO's age-related departure, the average maturity of new loans is 1.5 years shorter, compared to the earlier years of CEOs' time in office. Columns (1) and (2) control for firm and fiscal year fixed effects. In Columns (3) and (4), I repeat the analysis by replacing firm fixed effects with firm-CEO pair fixed effects. The results are similar.

4.B. New Loan Maturities before Retirement and Heir Apparent Successor

Succession planning can potentially mitigate lame duck CEOs' horizon problem, especially if the successor is identified well in advance and already works in the firm, i.e. an heir apparent. On one hand, the heir apparent may actively engage in activities usually involving the CEO during the transition period. She may participate in loan negotiations, which can offset the effect of the departing CEOs' preference for shorter maturity. On the other hand, the departing CEO might have a favorable relationship with the heir apparent, and may take into account the successor's interest when negotiating new loans. Presumably, it is in the successor's interest to have longer maturities for new loans under the predecessor, to avoid renewing or paying principal early in the successor's tenure, especially since firms with new CEOs likely have to work with new lenders and offer higher loan spreads (see Pan, Wang and Weisbah 2017 and Karolyi 2017).

To test the effect of having an heir apparent successor on loan maturity as the current CEOs approach retirement, I estimate the following equation with CEOs who ultimately retired.

$$Avg\ New\ Loan\ Maturity_{i,t} = \beta_1 \cdot Years\ to\ CEO\ Depart\ (3 \rightarrow 1)_{i,t} \cdot Having\ Heir_{i,j} + \beta_2 \cdot Years\ to\ CEO\ Depart\ (3 \rightarrow 1)_{i,t} + \beta_3 \cdot Having\ Heir_{i,j} + \lambda_1 \cdot CEO\ Age_{i,t} + \lambda_2 \cdot CEO\ Tenure_{i,t} + \gamma \cdot Controls_{i,t-1} + FE_{ind} + FE_t + \epsilon_{i,t}, \quad (3)$$

where $Having\ Heir$ equals one if the succeeding CEO is an heir apparent, and zero otherwise. Following Pan, Wang and Weisbach (2017), I classify heir apparent as CEOs who were president or COO right before becoming CEO, using both *ExecuComp* and *BoardEx* datasets. If the succeeding CEO' position before taking office cannot be identified, I exclude the observation. $Having\ Heir$ has many missing values. When defining retirement as leaving between the age of 64 and 66, due to the small sample size, 104 firm-year observations, the estimation fails. Thus, I use CEOs who eventually left at the age of 64 or older, which offers 211 firm-year observations. With firm fixed effects, firms with only one observation are not used, and the estimation fails due to a small sample. Thus, I replace firm fixed effects with industry fixed effects.

Column (1) in Table 5 presents the estimates of Equation (3). The coefficient on $Years\ to\ Depart\ (3 \rightarrow 1)$, β_2, is positive, suggesting that firms without heir apparent shorten new loan maturities, although statistically insignificantly. β_1, the coefficient on the interaction term, is negative and statistically significant, indicating that having an heir apparent successor mitigates the effect of lame duck CEOs on loan maturity. In Column (2), I replace $Years\ to\ Depart\ (3 \rightarrow 1)$ with $1\ Year\ to\ CEO\ Depart$. The results in both columns are consistent with the idea that having an heir apparent successor offsets the shorter horizon of the retiring CEO. Untabulated results indicate that, as CEOs with heir apparent successor approach retirement, new loan maturities increase, but not statistically significantly.

4.C. New Loan Maturities before Retirement and CEO Stock Ownership

The results so far suggest that, as CEOs approach retirement, firms' new loans have shorter maturities. The results are consistent with the hypothesis that CEOs have shorter horizons at the end of their career, caring more about short-term benefits from loans of shorter maturity. If a CEO has higher ownership of the firm, she is likely to care more about the firm value. Retiring CEOs with high ownership might take actions more favorable to shareholders than retiring CEOs with low ownership. As mentioned earlier, new CEOs tend to face higher yields on new loans. Therefore, the optimal loan contract under a retiring CEO might involve longer maturity.

I hypothesize that firms will shorten maturities of new loans by less near CEO retirement, if CEOs have higher ownership. To test this prediction, I estimate the following equation in Table 6, using CEOs that eventually left office at age 64 or older. (There are 55% more observations than if I restrict to firms whose CEOs left office between 64 and 66.)

$$Avg\ New\ Loan\ Maturity_{i,t} = \beta_1 \cdot 1\ Year\ to\ CEO\ Depart_{i,t} \cdot High\ Ownership_{i,j} + \beta_2 \cdot High\ Ownership_{i,j} + \beta_3 \cdot 1\ Year\ to\ CEO\ Depart_{i,t} + \lambda_1 \cdot CEO\ Age_{i,t} + \lambda_2 \cdot CEO\ Tenure_{i,t} + \gamma \cdot Controls_{i,t-1} + FE_{ind} + FE_t + \epsilon_{i,t}. \quad (2)$$

Since CEOs' stock ownership changes over time, to ease the interpretation, I do not use the spline variable $Years\ to\ CEO\ Depart$ $(3 \rightarrow 1)$, but only the dummy variable $1\ Year\ to\ CEO\ Depart$. $High\ Ownership$ is a dummy variable equal to one if the CEO's stock ownership of the firm averaged over her entire tenure is higher than the median (0.37%) in Columns (1), the 75th percentile (0.85%) in Columns (2), and the 85th percentile (1.6%) in Columns (3), and zero otherwise.

The coefficient on $1\ Year\ to\ CEO\ Depart$ is negative and statistically significant in all columns, suggesting that CEOs with low ownership decrease new loan maturities as they

approach retirement. The coefficient on the interaction term, β_1, is positive and statistically significant in each column, suggesting that having high stock ownership offsets the shortening of new loan maturity before CEO retirement. Untabulated results suggest that, as CEOs with high stock ownership approach retirement, new loan maturities increase, but not statistically significantly.

In each column, the sum of β_1 and β_2 is positive and statistically significantly different from zero (the p value of the F test is in the bottom row). The positive sum of β_1 and β_2 implies that in the last fiscal year before retiring, if the CEO has higher stock ownership, firms initiate longer-maturity loans, compared to if the CEO has lower stock ownership. This result suggests that the shorter loan maturity near the retirement of CEOs with low ownership is unlikely optimal for shareholders, since the loan maturity is longer under CEOs with higher ownership. The results are consistent with the idea that having high stock ownership offsets inefficiently short horizon of the retiring CEO.

4.D. When do Loans Mature Relative to CEO Departure?

I hypothesize that after CEOs make a plan for retirement, they will take out loans that mature shortly after their retirement, so that they get the benefits of shorter maturity, while still avoiding refinancing or paying back the principals. When CEOs are fired, they are generally given very short notice. Before knowing that they will be fired, CEOs might initiate loans of longer maturity, to reduce the probability of having to face loans coming due. Therefore, if the CEO ultimately retires, more loans taken out under her should mature sooner after her departure, compared to if the CEO is fired. To test this prediction, I estimate the following equation:

$$\frac{Loan\ Mature_{i,j,t} * 100}{Total\ Loan\ Issued_{i,j}} =$$

$$Retire_{i,j}\big(\beta_1 \cdot 1-6\ Months\ After_{i,j,t} + \beta_2 \cdot 7-12\ Months\ After_{i,j,t} + \beta_3 \cdot 13 - 18\ Months\ After_{i,j,t}\big) +$$

$$CEO\ Total\ Tenure_{i,j}\big(\beta_4 \cdot 1-6\ Months\ After_{i,j,t} + \beta_5 \cdot 7-12\ Months\ After_{i,j,t} + \beta_6 \cdot 13 - 18\ Months\ After_{i,j,t}\big) +$$

$$\beta_7 \cdot 1-6\ Months\ After_{i,j,t} + \beta_8 \cdot 7-12\ Months\ After_{i,j,t} + \beta_9 \cdot 13 - 18\ Months\ After_{i,j,t} +$$

$$\alpha_1 \cdot Retire_{i,j} + \alpha_2 \cdot CEO\ Total\ Tenure + FE_i + FE_{Departure\ Year} + \epsilon_{i,j,t} \qquad (4)$$

I divide time into periods of consecutive but non-overlapping six months, relative to each CEO's departure, indexed by *t*.[7] For each six-month period, the sum of loans initiated by CEO *j* of firm *i* with a maturity date within that period (multiplied by 100) is the numerator in the dependent variable. The sum of loans initiated by this CEO is the denominator. The dependent variable represents loans initiated by this CEO that mature in period *t*, as a percentage of all loans initiated by her. $1-6\ (7-12, 13-18)\ Months\ After$ is a dummy variable equal to one if the six-month period *t* is the first (second, third) six months after CEO departure, and zero otherwise. The omitted time periods are all the six-month periods before CEO departure and after 18 months following CEO departure.

$Retire$ equals one if the CEO leaves at age 64-66 (or 64 or older), and zero otherwise. I control for the effect of CEO's total tenure on when loans mature, by including interactions

[7] For example, if a CEO leaves on 06/01/2005, then *t* can represent the first six months after turnover, from 06/02/2005 to 11/01/2005, or the second six months, from 11/01/2005 to 06/01/2006, and all the way until the *n*th six months after turnover, where *n* is the maximum maturity of loans taken out under CEO *j* at firm *i*. *t* can also represent the first, second, until *m*th six months before CEO turnover, where *m* is the number of six-month periods during CEOs' tenure. Thus, the number of observations for each CEO *i*,*j* is the *m*+*n*.

between $CEO\ Total\ Tenure$ and $1-\ 6\ (7-12, 13-18)\ Months\ After$. I also include firm fixed effects, FE_i, and departure-year fixed effects, $FE_{Depart\ Year}$. I predict that more loans will mature soon after CEO retirement, than after non-retirement departures.

Table 7 presents the results. In Columns (1)-(4), I construct the dependent variable by equally weighting loans in both the numerator and the denominator, using the number of loans. In Columns (1)-(2), $Retire$ equals one if the CEO leaves at age 64-66. In Column (1), β_1 is 2.13 and statistically significant, suggesting that 2.13% more loans taken out under the CEO mature in the first six months after CEO retirement, relative to after non-retirement departure. β_2 is statistically insignificant. β_3 is -2.54 and statistically significant, suggesting that 2.54% fewer loans initiated under the CEO mature in the third six months after CEO retirement, relative to after non-retirement departure. These results are consistent with the idea that retiring CEOs can shorten new loan maturities so that more loans mature quickly after departure, rather than a longer time after departure. In other words, to avoid refinancing loans, retiring CEOs can initiate loans with shorter maturity, relative to CEOs who know less about when they will depart.

Since CEOs will be better able to plan loan maturity around departure when closer to retirement, in Column (2) I construct the dependent variable using only loans initiated in the calendar year before the year of CEO departure. β_1 more than doubles that in Column (1) and is statistically significant, consistent with the idea that retiring CEOs can use shorter loan maturities to avoid dealing with loan maturing. Based on Column (2), 4.80% more loans initiated one year before CEO departure matures in the first six months after CEO retirement, relative to after non-retirement departure.

Columns (3)-(4) repeat Columns (1)-(2) by using the alternative definition of $Retire$: equal to one if the CEO leaves at age 64 or older and zero otherwise. Columns (5)-(8) repeat Columns (1)-(4), with the dependent variable constructed by value-weighting loans. Among Columns (3)-(8), β_1 is always positive, and statistically significant in (5)-(7). Results support the idea that retiring CEOs can use shorter maturity to avoid facing the maturing of loans.

4.E. Loan Pricing and Maturity

The evidence so far suggests that firms shorten the maturity of new loans before CEOs retire. Why would retiring CEOs prefer shorter-term loans? One reason may be that it takes shorter time and less effort to negotiate a shorter-maturity loan than a longer- maturity one. Another reason for preferring shorter-term loans is that firms might save on interest payment with shorter loan maturity. This section tests whether shorter loan maturity before CEO retirement leads to decrease in promised loan yields in my sample.

Do firms pay lower spreads through shorter maturities of new loans? A "naïve" regression with loan spreads as the dependent variable and maturity as the independent variable cannot answer this question, because loan spreads and maturity are jointly determined. For example, firms face higher yields due to higher risk may choose a shorter-maturity loan to avoid even higher yields. The "naïve" regression can have a negative coefficient on loan maturity, suggesting that shorter-term loans have a higher yield. However, such a regression does not suggest that shorter maturity "causes" yield to be higher, while I am interested in the causal impact of maturity on loan spread.

To circumvent this endogeneity problem, I use the following system of simultaneous equations, with loans taken out under CEOs who eventually likely retired, departed at age 64-66 or at 64 or older.

$$Loan\ Maturity_{i,l,t} = \beta_1 \cdot Years\ to\ CEO\ Depart\ (3 \rightarrow 1)_{i,t} + \beta_2 \cdot Loan\ Spread_{i,l,t} + \gamma_a \cdot Control_{i,l,t} + \lambda_a \cdot Control_{i,t-1} + \epsilon_{i,l,t} \quad (6a)$$

$$Loan\ Spread_{i,l,t} = \alpha_1 \cdot Credit\ Spread_{m-1} + \alpha_2 \cdot Loan\ Maturity_{i,l,t} + \gamma_a \cdot Control_{i,l,t} + \lambda_a \cdot Control_{i,t-1} + u_{i,l,t}, \quad (6b)$$

where *i* indexes the firm, *j* the CEO and *l* the loan.

Equation (6a) is identified assuming the endogenous variable, $Loan\ Spread$, is related to the instrument, $Credit\ Spread$ in (6b), and the instrument does not affect loan maturity through any other channel. Equation (6b) is identified assuming the endogenous variable, $Loan\ Maturity$, is related to the instrument, $Years\ to\ CEO\ Depart(3 \rightarrow 1)$ in (6a), and the instrument does not affect loan spreads through any other channel. I also control for the fixed effects of loan purposes in both equations.

Columns (1)-(2) in Table 8 show the results, using loans taken out under CEOs who eventually departed at age 64-66. In Column (1) estimating Equation (6a), the coefficient on $Years\ to\ CEO\ Depart(3 \rightarrow 1)$ is positive and statistically significant, suggesting that the maturity of new loans decreases as CEOs approach retirement. In Column (2) estimating Equation (6b), the coefficient on $Loan\ Maturity$ is positive and significant, indicating that shorter maturity due to impending CEO retirement leads to lower loan spreads. Column (3)-(4) repeat the analysis, using loans taken out under CEOs who eventually departed at age 64 or older. The coefficient on $Years\ to\ CEO\ Depart(3 \rightarrow 1)$ is positive, but statistically insignificant.

Columns (5)-(6) replace $Years\ to\ CEO\ Depart$ $(3 \rightarrow 1)$ in Equation (6a) with $1\ Year\ to\ CEO\ Depart$, using loans initiated under CEOs who eventually departed at age 64-66. In Column (5), the coefficient on $1\ Year\ to\ CEO\ Depart$ is negative and statistically significant, suggesting that new loan maturity declines as CEOs approach retirement. In Column (6), the coefficient on loan maturity is again positive and significant, suggesting that shorter maturity leads to lower loan spreads. Columns (7)-(8) repeat (5)-(6) by using loans initiated under CEOs who eventually departed at age 64 or older. Results are similar. Column (5) suggests, in the year before CEO departure, maturities of individual loans shortens by 0.43 years. Column (6) suggests that the spreads of individual loans are lower, as a result, by 10.23 basis points (0.43*23.80). This is 11.7% of the median (87.5), and 9.0% standard deviation (114.23) of the subsample used in this regression.

The identifying assumption for Equation (6b) is that CEOs' impending departure does not affect loan spreads through any other channel other than loan maturity. This assumption can be violated if both CEOs' imminent departure and shorter loan maturity can be due to reasons behind CEOs' being fired. The instrumental variable regression in Table 4 addresses this concern. Based on Column (2) in Table 4, *1 Year to CEO Depart* predicted by CEOs' age-based departure probability is associated with shorter loan maturity of 1.5 years. Combining with Column (6) here, *1 Year to CEO Depart* predicted by CEOs' age-based departure probability is associated with 35.7 basis points (1.5*23.80). This is 40.8% of the median (87.5), and 31.3% of the standard deviation (114.23) of the spreads in the subsample in this regression. Since the median (mean) total new loan size is \$500M (\$1,432M) the year before these CEO retirements, a decline in interest rate by 35.7 basis points can generate interest saving of \$1.8M (\$5.1M) a year, ignoring taxes. Since firms' median EBIT is around \$213.8M in this subsample, the median

interest saving is 0.8% of the median EBIT. Although this interest saving might not seem large, there are other actions a retiring CEO can take that can also boost accounting performance. For example, I find that bond maturity declines by around two years in the year before CEO retirement (see Table A3).

4.F. Alternative Explanations

I document that before CEO retirement, firms initiate new loans with shorter maturity. This section discusses alternative hypotheses, and evidence that does not support them.

4.F.1. Alternative Explanation 1: Inside Debt

Dang and Phan (2016) find that CEOs' inside debt is positively related to firms' short-maturity debt. In the regressions I present, I do not control for CEOs' inside debt, since the data became available only in 2006 and I lose 68% of observations by controlling for lagged CEOs' inside debt. In Table A4 in the Appendix, I show results using data with non-missing CEO inside debt, both with and without controlling for inside debt. The magnitude of CEOs' imminent departure on new loan maturities is similar regardless of whether I control for inside debt or not. If I control for contemporaneous CEOs' inside debt instead of lagged, the results are similar, other than that the coefficients on *CEO inside debt* being statistically insignificant. In addition, as CEOs approach retirement (left at 64 or older), the average CEO inside debt declines from 0.48 (three years before retirement) to 0.41 (two years before retirement) then to 0.34 (one year before retirement). If CEOs' imminent departure affects new loan maturity through CEOs' inside debt, then new loan maturities should increase as CEO approaches retirement according to Dang and Phan (2016)'s findings.

4.F.2. Alternative Explanation 2: Uncertainty about the Succeeding CEO

The second alternative hypothesis is that lenders perceive higher risk from the uncertainty of the incoming CEO. Pan, Wang and Weisbach (2017) documents that CDS, loan and bond spreads are high after CEO turnover, and declines with CEO tenure. Lenders may want to shorten the new loan maturity as the current CEO approaches retirement, so they can evaluate the succeeding CEO and renegotiate the loan contract accordingly soon after the turnover.

Loan Spreads before CEO Retirement

If uncertainty about new management is high before CEO retirement and such uncertainty is priced by lenders, then new loans or bonds issued before CEO retirement likely have higher spreads. I test this prediction in Appendix B1. Results suggest that controlling for loan characteristics, loan spreads do not increase before CEO retirement. Similarly, in untabulated tests, I find that bond spreads do not increase either. These results do not support the alternative hypothesis that successor uncertainty drives the shorter maturity of new loans.

Loan Maturity before CEO Retirement and Financial Constraints

If lenders dislike uncertainty about the succeeding CEO, such uncertainty should be more prominent among financially more constrained firms, because these firms are more likely to default if the new CEO turns out to be a poor choice. Therefore, if lenders restrict new loans to shorter maturity due to uncertainty about the new CEO, the decline in loan maturity should be larger for more financially constrained firms. I test this prediction in Appendix B2, using five different proxies for tighter financial constraints: if the firm was not rated, if the firm's Z-score is below 1.8, if lagged leverage was above median, if lagged book assets was below median, and if lagged interest rate coverage ratio was low, all based on the previous year. Results imply that

more constrained firms do not experience a larger decline in loan maturity, not supporting the alternative hypothesis about successor uncertainty.

Loan Covenants before CEO Retirement

If lenders perceive higher risk due to an imminent CEO change and restrict loan maturity as a result, they might also impose more covenants on new loans. I test this prediction in Appendix B3. Results imply that the number of covenants does not increase near CEO retirement, not supporting the alternative hypothesis about successor uncertainty.

New Lenders before CEO Retirement

Karolyi (2017) finds that firms are more likely to work with new lenders after CEO turnover, and argues it is because personal lending relationship between the departing CEO and lenders no longer serves the firm. Karolyi (2017) links his results to the idea that lending relationship is subject to uncertainty about the CEO and information asymmetry between the CEO and lenders. Following this logic, if firms' relationship with banks will terminate due to changes of CEO, and if lenders foresee an impending CEO change, they might terminate the relationship sooner, and firms might need to find new lenders. Appendix B4 tests this prediction. The results suggest that firms do not increasingly resort to new lenders when CEOs approach retirement, not supporting the hypothesis about successor uncertainty.

4.F.3. Alternative Explanation 3: Leaving Flexibility to the Succeeding CEO

The third alternative hypothesis is that, as CEOs plan for their retirement, they might want to leave flexibility to their successors. Retiring CEOs might initiate new loans with shorter maturity, so that the successors can structure the characteristics of new loans as they prefer. This

alternative explanation is unlikely for the following reasons. Pan, Wang and Weisbach (2017) suggest that early in CEO tenure, loan spreads are high and decline over CEO tenure, more so if the new CEO does not have a pre-existing relationship with the lender. Karolyi (2017) suggests that, after CEO turnover, firms work with new lenders more often and lose relationship-driven discounts on loan spreads. Their results suggest that successor CEOs, if without prior relationship with lenders, pay higher spreads on new loans, which is unlikely desirable for the successors. In addition, I find that as CEOs with higher stock ownership approach retirement, the average maturity of new loans does not decline. Therefore, the decrease in loan maturity is unlikely due to retiring CEOs' desire to leave flexibility to their successors.

4.F.4. Alternative Explanation 4: CEOs' Age

The fourth alternative explanation is that the shortening of loan maturity is not due to CEOs' lame duck status, but due to CEOs' being older. CEOs that are closer to retirement are on average also older. In the results so far, I always controlled for CEOs' age. However, the relationship between CEO age and loan maturity may not be linear. In Table A5, I examine how average loan maturities relate to three dummy variables for CEOs' age: *CEO Age > 62*, *CEO Age 58-62* and *CEO Age 53-57*. Results do not suggest that loan maturities decline as CEOs become older.

5. Investment before CEO Retirement

The evidence that firms shorten new loan maturity as CEOs approach retirement is consistent with the hypothesis that retiring CEOs having shorter horizons. Shorter horizons make the long-term benefits (e.g. lower refinancing risk) less attractive, and the short-term benefits (e.g. lower borrowing rates and potentially easier negotiation) more attractive. Shorter horizons

may lead CEOs to reduce investments, since investments may not realize gains before CEO departure, especially if the investments require substantial effort from the CEO. Because much of capital expenditure may be routine and does not require CEO discretion, while large acquisitions generally require significant attention and effort from CEO, firms might reduce acquisitions. I test this prediction with the following specification.

$$Acquisition/Assets_{i,t} = \beta_1 \cdot Years\ to\ CEO\ Depart\ (3 \to 1)_{i,t} + \beta_2 \cdot$$
$$Years\ to\ CEO\ Depart\ (3 \to 1)_{i,t} \cdot NonRetire_{i,j} + +\lambda_1 \cdot CEO\ Age_{i,t} + \lambda_2 \cdot CEO\ Tenure_{i,t} +$$
$$\gamma \cdot Controls_{i,t-1} + FE_{i,j} + FE_t + \epsilon_{i,t}. \qquad (12)$$

Subscript, *j*, indexes for the CEO in office at firm *i* at fiscal year *t*. Deviating from the empirical analysis related to new loans above, here I use firm-CEO pair fixed effects, $FE_{i,j}$, instead of firm fixed effects, since I have more observations for each firm-CEO pairs here than in the loan sample. I only include acquisitions with value above 5% of acquirers' lagged assets, since small targets may not require discretion from the CEO, but from a lower managerial level. (Using 1% or 10% of lagged acquirers' assets leads to similar results.)

Results are presented in Panel A of Table 9, in Columns (1) and (2). The coefficients on $Years\ to\ CEO\ Depart\ (3 \to 1)$ are positive and statistically significant, suggesting firms decrease acquisitions as CEOs approach retirement. The estimate suggests that, from three or more years to one year before CEO retirement, firms decrease acquisitions by 2.0 percentage points. This magnitude is substantial, given that the median is 0 and standard deviation 18%. Columns (3)-(4) replace $Years\ to\ CEO\ Depart\ (3 \to 1)$ with 1 $Year\ to\ CEO\ Depart$. Results again suggest lower acquisition intensity near CEO retirements.

In untabulated results, I replace the dependent variable with *CAPX* scaled by assets. The coefficient on $Years\ to\ CEO\ Depart\ (3 \rightarrow 1)$ is statistically insignificant, suggesting that routine investment does not change near CEO retirement. I also examined whether R&D activities changes near CEO retirement, using R&D scaled by assets, by sales, and R&D growth rate. I find no statistically significant change of R&D activities near CEO retirement (untabulated).

Results in Panel A of Table 9 are consistent with the idea that CEOs may have shorter horizons, forgoing projects that require major CEO effort. In Panel B, I use the instrumental variable approach by instrumenting $1\ Year\ to\ CEO\ Depart$ with $CEO\ Depart\ Probability$ in the first stage. Again, the instrument is positively and statistically significantly related to CEOs' imminent departure. In the second stage, the coefficient on $1\ Year\ to\ CEO\ Depart$ is negative and statistically significant, suggesting that firms cut acquisitions by around 5.0 percentage points in the year prior to CEO departure related to industry CEO retirement norms. Whether controlling for firm-CEO and year fixed effects (Columns (1)-(2)) or firm and year fixed effects ((3)-(4)), the results are similar.

6. Cash Holdings before CEO Retirement

Results in the previous section suggest that, as CEOs approach retirement, firms decrease acquisition activities, consistent with the idea that CEOs have shorter horizons. A counterargument is that firms might increase their other activities, e.g. marketing or hiring, while reducing acquisitions. If firms increase other activities, it is likely that they will use cash holdings to fund those activities. If increase in other activities is larger than the decrease in acquisitions in terms of liquidity needs, one should expect cash holdings to declines, as CEOs are

near retirement. This section examines firms' cash holdings as CEOs approach retirement. I test these predictions with the following specification:

$$Cash/Assets_{i,t} = \beta_1 \cdot Years\ to\ CEO\ Depart\ (3 \rightarrow 1)_{i,t} + \beta_2 \cdot Years\ to\ CEO\ Depart\ (3 \rightarrow 1)_{i,t} \cdot NonRetire_{i,j} + \beta_3 \cdot NonRetire_{i,j} + \lambda_1 \cdot CEO\ Age_{i,t} + \lambda_2 \cdot CEO\ Tenure_{i,t} + \gamma \cdot Controls_{i,t} + FE_{i,j} + FE_t + \epsilon_{i,t}. \quad (13)$$

The results are presented in Columns (1)-(2) of Panel A, Table 10. The coefficients on $Years\ to\ CEO\ Depart\ (3 \rightarrow 1)$ are negative and statistically significant, suggesting that cash holdings increase as CEOs approach retirement, and overall activities requiring liquidity decline as CEOs approach retirement. Based on Column (1), from three and more years to one year before CEO retirement, firms increase cash holdings by 1.4 percentage points, which is 15.8% of the median (8.6%) and 7.7% of the standard deviation (17.7%). Columns (3)-(4) replace $Years\ to\ CEO\ Depart\ (3 \rightarrow 1)$ with $1\ Year\ to\ CEO\ Depart$. The coefficients on $1\ Year\ to\ CEO\ Depart$ are positive and statistically significant, consistent with Columns (1)-(2). These results support the idea that firms cut activities that require both liquidity and CEOs' effort before CEO retirement.

In Panel B, I again use the instrumental variable approach. In the first stage in Column (1), I instrument $1\ Year\ to\ CEO\ Depart$ with $CEO\ Depart\ Probability$. Again, $CEO\ Depart\ Probability$ has a positive and statistically significant coefficient, implying that this instrument can predict CEO departure. In the second stage in Column (2), the coefficient on $1\ Year\ to\ CEO\ Depart$ is positive and statistically significant, indicating that firms hold around 2.5 percentage points more cash in the calendar year before CEO departures related to CEOs'

age. Whether controlling for firm-CEO and year fixed effects (Columns (1)-(2)) or firm and year fixed effects ((3)-(4)), the results are similar.

The results in this section suggest firms accumulate more cash as CEOs approach retirements, presumably as a result of decreased activities requiring liquidity and CEOs' effort before CEO retirement. These results support the idea that CEOs' horizons shorten and they prefer a quiet life before retirement. However, that cash holdings increase as loan maturities become shorter is consistent with firms mitigating refinancing risk, as in Harford, Klasa and Maxwell (2014), although their paper does not explain the shortening of new loan maturities near CEO retirement.

7. Conclusion

Managerial behavior and incentives are an important part of the functioning of the capital markets. Every CEO ultimately leaves the office. If a high proportion of CEOs have a departure plan in advance, their actions and preferences during the lame duck period can be of high importance to shareholders, especially since the average CEO total tenure is a short six years.

This paper examines firm behavior before CEOs' departures likely due to retirement to provide perspectives on lame duck CEOs' incentives. I find that as CEOs approach likely retirement, the average maturity of new loans shortens. This result is robust to the instrumental variable approach, where I instrument for CEO departures with departure probability based on industry and CEOs' age. This result is consistent with that CEOs' horizons become shorter as they approach retirement. As CEOs are near the end of their career, benefits of longer-term loans (e.g. avoiding refinancing risk), becomes less attractive, as long as loans mature after their

retirement. At the same time, benefits of shorter-term loans (e.g. lower spreads and potentially easier negotiation), become relatively more attractive.

Additional results related to loans are also consistent with the hypothesis that lame duck CEOs have shorter horizons. When there is an *heir apparent* successor or when the CEO has high stock ownership of the firm, the average maturity of new loans does not decline. More loans mature in the six months after CEO departures more likely due to retirement, compared to after CEO departures less likely to be due to retirement.

Consistent with CEOs' shorter horizons near retirement, I also find that CEOs near retirement decrease acquisition activities. Firms also accumulate more cash holdings, presumably as a result of decreased activities requiring liquidity and CEO effort before CEO retirement. Both the results on acquisition and cash hold with the instrumental variable approach.

This paper suggests that CEOs near retirement have shorter horizons, either by preferring more immediate payoff or enjoying a quiet life. Some other important research questions remain open. Are some compensation packages more effective at mitigating the short horizon problem of older CEOs? Can a young executive team around the CEO mitigate the lame duck CEO's shorter horizons? It is also worth investigating, theoretically and empirically, how CEOs at different ages are valued differently, given that older CEOs are more likely to have a short-horizon problem as they approach retirement.

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Tables and Figures

Figure 1

This figure shows the probability of the CEO leaving office at age n or n+1, conditional on the CEO reaching age n while in office. The probability is calculated as the number of CEOs leaving at age n or n+1 as a percentage of the number of CEOs who reached age n in office.

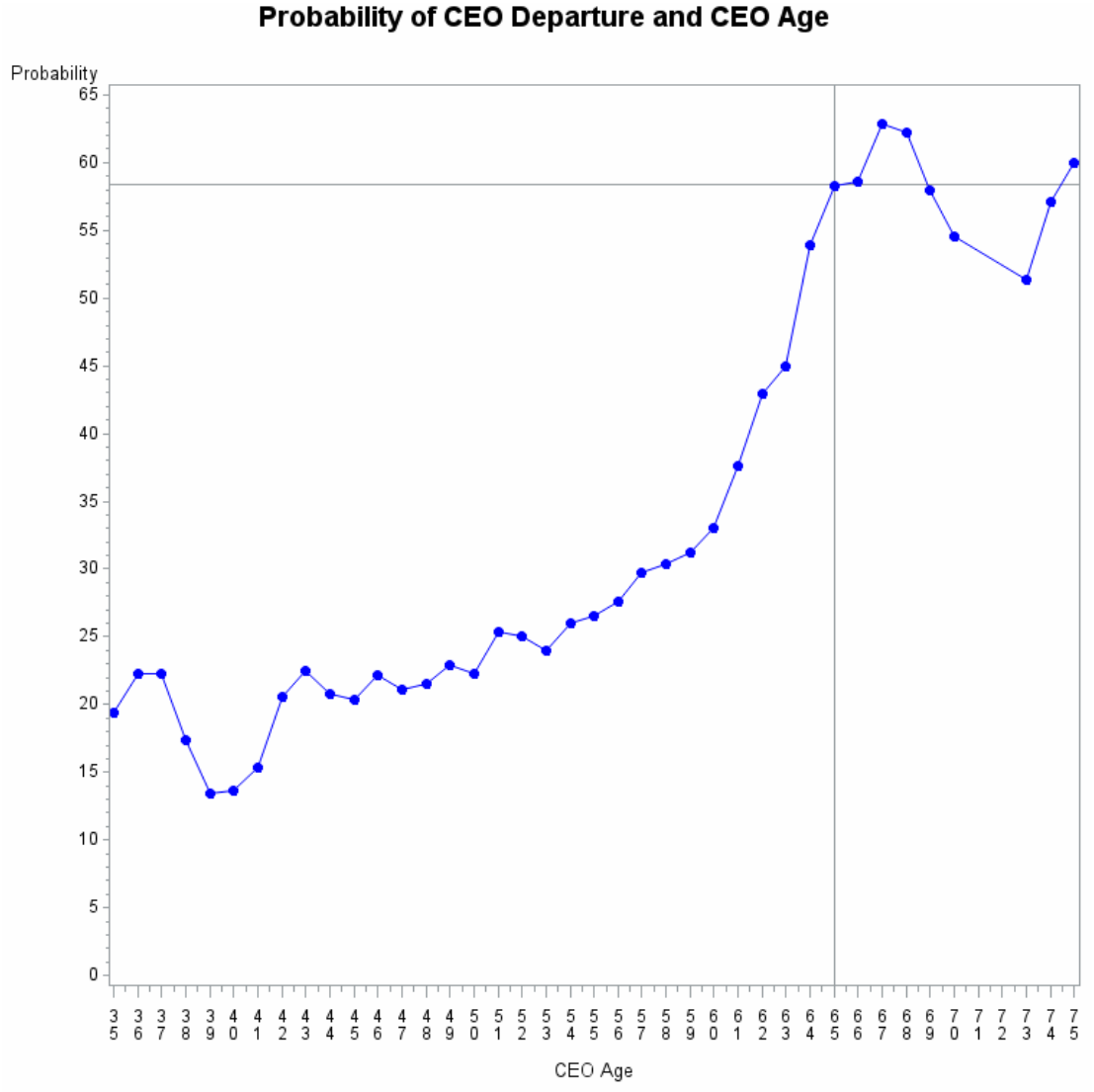

Table 1: Summary Statistics

This table provides summary statistics. Panel A presents statistics on the probability of CEO departure based on CEO age and industry. Panel B provides statistics on CEO age at departure and CEO total tenure, for different subsamples. Retirement subsample is defined either as CEOs who eventually left at age 64 or older, or eventually left at age between 64 and 66. Panel C provides summary statistics at the loan level, D statistics on loans at firm-year level, E on CEO and management characteristics at firm-year level, and F financial variables at firm-year level. See Table A1 for variable definitions.

Panel A: CEO Age at Departure and Total Tenure at CEO Level

	Retirement Subsample				Non-Retirement Subsample			
	N	**Mean**	**Median**	**Std**	**N**	**Mean**	**Median**	**Std**
		Depart at age 64-66				**Depart at age < 64 or > 66**		
CEO Age at Departure	353	64.91	65	0.79	2602	56.67	57.00	7.55
Total Tenure (Years)		6.78	6	4.47		5.15	5.00	4.15
		Depart at age >= 64				**Depart at age < 64**		
CEO Age at Departure	660	67.30	66.00	3.53	2295	54.88	56.00	5.99
Total Tenure (Years)		6.35	6.00	4.98		5.05	4.00	3.95

Panel B: Probability of CEO Departure Based on CEO Age and Industry

	N	**Mean**	**Std**	**25 Pctl**	**Median**	**75 Pctl**
Departure Probability (%)	1687 (industry-CEO age)	29.86	25.05	10.00	26.09	50.00
Age at Peak Departure Probability	66 (industries)	64.23	7.77	60.00	65.00	70.00

Panel C: CEO and Management Variables at the Firm-Year Level

	N	Mean	Std	25 Pctl	Median	75 Pctl
CEO Age	3576	55.56	6.42	52.00	56.00	60.00
CEO Delta	3126	670.95	2523.74	98.87	231.87	550.04
CEO Tenure (Years)	3614	4.62	3.46	2.00	4.00	6.00
CEO Vega	3203	170.32	290.65	26.93	75.46	195.53
CEO with Heir Successor	904	0.45	0.50	0.00	0.00	1.00
High CEO Ownership (>1.6%)	3578	0.13	0.34	0.00	0.00	0.00
High CEO Ownership (>5%)	3578	0.04	0.20	0.00	0.00	0.00
Top Management Ownership	3460	2.06	5.55	0.18	0.51	1.38

Panel D: Individual New Loan Level

	N	Mean	Std	25 Pctl	Median	75 Pctl
Maturity (Years)	11982	4.06	2.40	2.00	5.00	5.00
Spreads	10414	156.32	125.67	50.00	125.00	225.00
Size (Millions)	11982	564.06	1099.33	100.00	250.00	600.00
Number of Covenants	8891	2.40	2.02	1.00	2.00	4.00
Dummy for Performance Pricing	11982	0.47	0.50	0.00	0.00	1.00
Dummy for Term Loan	11978	0.25	0.43	0.00	0.00	1.00
Dummy for Secured	7964	0.63	0.48	0.00	1.00	1.00

Panel E: New Loans at the Firm-Year Level

	N	Mean	Std	25 Pctl	Median	75 Pctl
Weighted Avg. Maturity (Years)	3614	3.68	1.69	2.40	4.00	5.00
Avg. Maturity (Years)	3614	3.69	1.68	2.63	4.00	5.00
# of Deals	3614	2.46	2.34	1.00	1.00	4.00
Avg. Size (Millions)	3614	577.28	990.99	144.00	300.00	625.00
Total Size (Millions)	3614	1432.03	3229.03	200.00	500.00	1370.00
Avg. Spread	3614	132.48	108.15	45.00	100.00	187.50

Panel F: Firm Financial Variables at the Firm-Year Level

	N	Mean	Std	25 Pctl	Median	75 Pctl
Abnormal Earnings	3428	0.04	0.73	-0.01	0.01	0.03
Acquisition/At	3576	0.05	0.18	0.00	0.00	0.00
Asset ($Million)	3565	8722.28	24435.16	837.96	2265.30	7116.70
Asset Growth Rate	3565	0.20	0.58	0.00	0.08	0.22
Asset Maturity	3419	9.82	20.40	3.36	6.58	13.06
Capx/At	3553	0.06	0.06	0.02	0.04	0.07
Cash Flow	3566	0.15	0.08	0.10	0.14	0.18
Cash Flow Std Dev	3547	0.06	0.17	0.03	0.04	0.07
Cash Flow Std Dev of the Industry	3576	1.04	2.30	0.18	0.49	1.20
Cash/At	3574	0.09	0.10	0.02	0.05	0.12
Dummy for Dividend Paying	3565	0.59	0.49	0.00	1.00	1.00
Firm Age since IPO	3546	27.64	20.28	11.00	22.00	40.00
High Z Score Dummy	3195	0.92	0.27	1.00	1.00	1.00
Industry-adj ROA	3563	0.03	0.09	0.00	0.02	0.06
Industry-adj Stock Ret	3433	0.15	0.74	-0.12	0.06	0.29
Leverage	3565	0.25	0.16	0.13	0.24	0.35
Market/Book	3565	1.87	1.83	1.18	1.52	2.14
Net Working Capital	3434	0.07	0.13	-0.02	0.06	0.15
R&D/Sales	3565	0.02	0.05	0.00	0.00	0.02
S&P Rated	3437	0.69	0.46	0.00	1.00	1.00
Stck Return Std Dev	3396	0.08	0.05	0.05	0.07	0.10

Table 2: Difference in Performance between the Year before CEO Departure and Other Years

This table provides difference in performance between CEO's last year in office and the rest of her tenure. Panels A and B use different definitions of likely retirement. The first two rows in each panel offer the difference between last year and the rest of CEO tenure, in the retirement and non-retirement subsample, respectively. The last row in each panel provides the difference between the retirement and non-retirement subsamples. I estimate the following two equations.

$Y_{i,t} = \beta_1 \cdot 1\,Year\ to\ CEO\ Depart_{i,t} + \beta_2 \cdot 1\,Year\ to\ CEO\ Depart_{i,t} \cdot NonRetire_{i,j} + FE_{i,j} + FE_t + \epsilon_{i,t}$.

$Y_{i,t} = \beta_3 \cdot 1\,Year\ to\ CEO\ Depart_{i,t} + \beta_4 \cdot 1\,Year\ to\ CEO\ Depart_{i,t} \cdot Retire_{i,j} + FE_{i,j} + FE_t + \epsilon_{i,t}$.

i indexes for the firm, *t* the fiscal year, and *j* the CEO. *Y* is the financial variable measuring firm performance. $NonRetire$ is a dummy variable that equals one if CEO eventually left at age younger than 64 in Panel A, and if the CEO eventually left younger than 64 or older than 66 in Panel B. $Retire$ equals one minus $NonRetire$. β_1 is presented in Rows (1) and (4), β_3 in Rows (2) and (5), and β_2 in Rows (3) and (6).

	Change in ROA	Ind-Adj. Stock Return	Q	Cashflow /AT	Sales /Employee	Sales Grth Rate	Expenses /Sales
Panel A: Non-Retirement: CEO Eventually Left at Age < 64							
(1) Retirement	-0.0263	0.0123	0.0635	-0.0045	78.9999**	0.6172	-0.0031
Leave >=64	(-0.03)	(0.30)	(0.72)	(-1.15)	(1.97)	(0.53)	(-0.10)
(2) Non-Retirement	-1.1741**	-0.1176***	-0.1483***	-0.0098***	4.2332	0.6896	-0.0273
Leave <64	(-2.35)	(-4.66)	(-2.80)	(-4.12)	(0.17)	(0.97)	(-1.51)
(3) Non-Retirement (2)	-1.1429	-0.1305***	-0.2116**	-0.0052	-74.7250*	0.0730	-0.0242
— Retirement (1)	(-1.27)	(-2.88)	(-2.22)	(-1.22)	(-1.71)	(0.06)	(-0.75)
Panel B: Non-Retirement: CEO Eventually Left Age < 64 or > 66							
(4) Retirement	-0.2002	0.0324	0.0679	0.0002	50.5591	1.0264	-0.0058
Leave 64 ~ 66	(-0.20)	(0.63)	(0.63)	(0.04)	(1.03)	(0.71)	(-0.16)
(5) Non-Retirement	-1.0327**	-0.1084***	-0.1286**	-0.0101***	16.5628	0.6097	-0.0244
Leave <64 or > 66	(-2.15)	(-4.46)	(-2.52)	(-4.43)	(0.71)	(0.89)	(-1.40)
(6) Non-Retirement (5)	-0.8278	-0.1413***	-0.1963*	-0.0103**	-33.9433	-0.4162	-0.0186
— Retirement (4)	(-0.77)	(-2.62)	(-1.73)	(-2.02)	(-0.65)	(-0.27)	(-0.48)

Table 3: Firm-Year Average Maturity of New Loans before CEO Departure

This table estimates how average maturity of new loans changes as CEOs approach departure. In Panel A, the dependent variable is average maturity of new loans at the firm-fiscal year level, weighting loans equally in Columns (1)-(4), and weighting loans by loan size in Columns (5)-(8) in Panel A. *NonRetire* is a dummy variable equal to one if the CEO departed office younger than 64 or older than 66 in (1), (3) and (5), and if the CEO departed younger than 64 in (2), (4) and (6). Panel B shows robustness checks. The dependent variable is average maturity of new loans at the firm- fiscal year level, weighting loans equally. Column (6) only includes CEOs with total tenure four years or longer. Column (7) only includes CEOs of age 60 or older. In (8), dummy *NonRetire* equals one if the firm has a CEO mandatory retirement policy, and the CEO retired within one year of the specified age, based on data from Cline and Yore (2016). (9) only includes CEOs who eventually left between 64 and 66. Other variable definitions are in Table A1. T-statistics are in parentheses. Standard errors are corrected for clustering at the firm level. ***, ** and * denote statistical significance at 1%, 5% and 10% levels.

Panel A: Main Results

Dependent Var:	Equal-Weighted Avg New Loan Maturity				Size-Weighted Avg New Loan Maturity			
NonRetire=1 if CEO Eventually Left:	<64 or >66	<64	<64 or >66	<64	<64 or >66	<64	<64 or >66	<64
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Years to CEO Depart (3->1)	0.2754***	0.2057**			0.2532**	0.2048**		
	(2.61)	(2.34)			(2.38)	(2.29)		
Years to CEO Depart (3->1)*NonRetire	-0.1486	-0.0705			-0.1219	-0.0715		
	(-1.28)	(-0.70)			(-1.05)	(-0.70)		
1 Year to CEO Depart			-0.5662***	-0.3682**			-0.4778**	-0.3445**
			(-2.66)	(-2.10)			(-2.29)	(-1.98)
1 Year to CEO Depart *NonRetire			0.3651	0.1409			0.2791	0.1345
			(1.53)	(0.68)			(1.19)	(0.65)
NonRetire	0.4759	0.2243	0.0382	0.0043	0.4184	0.1886	0.0598	-0.0352
	(1.39)	(0.73)	(0.19)	(0.02)	(1.22)	(0.60)	(0.29)	(-0.17)
CEO Age	0.0043	0.0036	0.0032	0.0019	0.0041	0.0016	0.0030	-0.0004
	(0.32)	(0.23)	(0.24)	(0.12)	(0.30)	(0.10)	(0.22)	(-0.02)
CEO Tenure (Years)	0.0587***	0.0591**	0.0521**	0.0527**	0.0574**	0.0591**	0.0500**	0.0521**
	(2.62)	(2.55)	(2.38)	(2.31)	(2.48)	(2.49)	(2.22)	(2.24)
lag Log(Assets)	0.1124	0.1255	0.1353	0.1478	0.0207	0.0333	0.0485	0.0601
	(0.27)	(0.31)	(0.33)	(0.36)	(0.05)	(0.08)	(0.12)	(0.15)
lag Log(Assets) Square	-0.0143	-0.0151	-0.0161	-0.0169	-0.0108	-0.0117	-0.0128	-0.0137
	(-0.58)	(-0.61)	(-0.65)	(-0.68)	(-0.43)	(-0.46)	(-0.51)	(-0.54)
lag Leverage	-0.2365	-0.2379	-0.2678	-0.2686	-0.3227	-0.3255	-0.3568	-0.3594
	(-0.53)	(-0.54)	(-0.61)	(-0.61)	(-0.73)	(-0.74)	(-0.81)	(-0.82)
lag Asset Maturity	-0.0018**	-0.0018**	-0.0018**	-0.0018**	-0.0018**	-0.0018**	-0.0018**	-0.0018**
	(-2.15)	(-2.15)	(-2.15)	(-2.16)	(-2.37)	(-2.38)	(-2.38)	(-2.40)
lag Market/Book	-0.0298	-0.0302	-0.0296	-0.0302	-0.0256	-0.0258	-0.0253	-0.0257
	(-0.77)	(-0.78)	(-0.76)	(-0.78)	(-0.65)	(-0.66)	(-0.64)	(-0.66)
lag Abnormal Earnings	0.0447	0.0451	0.0433	0.0438	0.0797	0.0799	0.0783	0.0788
	(0.47)	(0.48)	(0.46)	(0.46)	(0.83)	(0.83)	(0.82)	(0.82)
lag Stck Ret Std Dev	-0.6216	-0.6165	-0.6162	-0.6162	-0.7629	-0.7582	-0.7530	-0.7521
	(-0.60)	(-0.59)	(-0.60)	(-0.60)	(-0.75)	(-0.74)	(-0.75)	(-0.74)
lag Rated Dummy	-0.0288	-0.0302	-0.0365	-0.0385	-0.0611	-0.0611	-0.0699	-0.0701
	(-0.19)	(-0.20)	(-0.24)	(-0.25)	(-0.39)	(-0.39)	(-0.45)	(-0.45)
lag High Zscore Dummy	-0.1967	-0.1964	-0.2091	-0.2074	-0.2405	-0.2397	-0.2516	-0.2500
	(-1.18)	(-1.18)	(-1.26)	(-1.25)	(-1.37)	(-1.36)	(-1.43)	(-1.42)
Firm Age since IPO	0.2116	0.2096	0.1987	0.1959	0.2195	0.2203	0.2058	0.2066
	(0.82)	(0.82)	(0.77)	(0.76)	(0.98)	(0.97)	(0.91)	(0.90)
lag R&D/Sales	-0.1631	-0.1906	-0.1883	-0.2121	-0.0735	-0.1008	-0.0936	-0.1173
	(-0.12)	(-0.14)	(-0.14)	(-0.16)	(-0.05)	(-0.07)	(-0.06)	(-0.08)
lag R&D Missing Dummy	0.1033	0.0990	0.1181	0.1109	0.0974	0.0905	0.1109	0.1024
	(0.35)	(0.34)	(0.40)	(0.38)	(0.33)	(0.31)	(0.38)	(0.35)
Firm FE, Year FE	✓	✓	✓	✓	✓	✓	✓	✓
N	3072	3072	3072	3072	3072	3072	3072	3072

Panel B: Robustness Tests

Dependent Var:	Equal-Weighted Avg New Loan Maturity								
NonRetire=1 if CEO Eventually Left:	<64 or >66							Not due to Mandatory Retirement	Only include CEOs left between 64 and 66
						Total Tenure >= 4 Yrs	CEO Age >=60		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Years to CEO Depart (3->1)	0.1992**	0.2753**							
	(2.07)	(2.52)							
Years to CEO Depart (3->1)*NonRetire	-0.1586	-0.1513							
	(-1.48)	(-1.24)							
1 Year to CEO Depart			-0.4820**	-0.6013***	-0.4837*	-0.5551**	-0.4546**	-0.7720***	-0.5292**
			(-2.41)	(-2.75)	(-1.95)	(-2.44)	(-2.10)	(-2.79)	(-2.22)
1 Year to CEO Depart *NonRetire			0.3967*	0.4261*	0.2712	0.2895	0.6825**	0.5619**	
			(1.76)	(1.71)	(0.95)	(1.13)	(2.51)	(1.97)	
NonRetire	0.4200	0.4650	-0.0400	0.0077		0.0172	-0.0066	-0.0477	
	(1.36)	(1.29)	(-0.24)	(0.04)		(0.07)	(-0.02)	(-0.21)	
CEO Age		0.0037		0.0028	1.0884	-0.0056	0.0248	-0.0004	-0.0138
		(0.26)		(0.19)	(1.17)	(-0.33)	(0.52)	(-0.04)	(-0.18)
CEO Tenure (Years)		0.0569**		0.0502**	-0.7554	0.0654**	-0.0315	0.0534***	-0.0029
		(2.31)		(2.09)	(-1.38)	(2.44)	(-0.65)	(3.03)	(-0.04)
lag Log(Assets)		-0.1509		-0.1260	-0.2288	-0.1934	-1.0764	-0.2339	0.0815
		(-0.29)		(-0.24)	(-0.37)	(-0.35)	(-0.98)	(-0.57)	(0.06)
lag Log(Assets) Square		0.0003		-0.0015	0.0169	0.0018	0.0422	0.0044	-0.0150
		(0.01)		(-0.05)	(0.45)	(0.05)	(0.66)	(0.17)	(-0.17)
lag Leverage		-0.1195		-0.1581	-0.2913	-0.1204	-0.9910	-0.2213	-1.4712
		(-0.24)		(-0.32)	(-0.49)	(-0.23)	(-1.19)	(-0.57)	(-1.28)

lag Asset Maturity		-0.0149		-0.0152	-0.0167	-0.0143	-0.0507*	-0.0180**	-0.0320*
		(-1.49)		(-1.52)	(-1.39)	(-1.42)	(-1.86)	(-2.08)	(-1.66)
lag Market/Book		-0.0361		-0.0354	-0.0123	-0.0482	-0.0988	-0.0382	0.1220
		(-0.79)		(-0.78)	(-0.26)	(-1.03)	(-0.94)	(-0.92)	(0.60)
lag Abnormal Earnings		0.0099		0.0087	0.0279	0.0473	0.0132	0.0111	0.1075
		(0.13)		(0.11)	(0.34)	(0.53)	(0.05)	(0.15)	(0.47)
lag Stck Ret Std Dev		-0.7324		-0.7082	-0.8715	-0.7682	-1.8689	-0.9346	0.9743
		(-0.65)		(-0.63)	(-0.68)	(-0.65)	(-0.91)	(-1.09)	(0.43)
lag Rated Dummy		-0.0952		-0.1037	-0.3095	-0.0993	-0.5531	-0.0861	-0.1338
		(-0.56)		(-0.61)	(-1.40)	(-0.55)	(-1.58)	(-0.54)	(-0.22)
lag High Zscore Dummy		-0.1509		-0.1638	-0.0922	-0.1188	-0.1357	-0.1688	-0.5998*
		(-0.89)		(-0.96)	(-0.45)	(-0.71)	(-0.40)	(-1.13)	(-1.91)
Firm Age since IPO		0.3893**		0.3639**	Omitted	0.3549***	1.7752	0.3575	2.1884
		(2.25)		(1.98)		(2.66)	(1.26)	(0.53)	(0.00)
lag R&D/Sales		-0.0421		-0.0672	0.5589	0.3152	-9.5854	0.0007	1.6318
		(-0.03)		(-0.05)	(0.45)	(0.26)	(-1.11)	(0.00)	(1.56)
lag R&D Missing Dummy		0.1871		0.2052	0.3219	0.2081	0.7861	0.1460	0.8513*
		(0.61)		(0.67)	(0.81)	(0.67)	(1.60)	(0.65)	(1.69)
lag CEO Delta		0.0000		0.0000	-0.0000	0.0000	-0.0000	0.0000	0.0000
		(0.24)		(0.24)	(-0.34)	(0.14)	(-1.32)	(0.49)	(0.07)
lag CEO Vega		-0.0001		-0.0001	-0.0002	-0.0002	-0.0003	-0.0001	-0.0001
		(-0.44)		(-0.48)	(-0.85)	(-0.69)	(-0.72)	(-0.52)	(-0.13)
lag Top Mngt Ownership		-0.0151		-0.0148	-0.0241	-0.0152	0.0422	-0.0108	0.0870*
		(-1.13)		(-1.11)	(-1.13)	(-1.12)	(1.40)	(-0.93)	(1.74)
Firm FE, Year FE	✓	✓	✓	✓		✓	✓	✓	✓
Firm-CEO FE, Year FE					✓				
N	3614	2807	3614	2807	2807	2635	791	2807	549

Table 4: Firm-Year Average New Loan Maturity before CEOs Retire--Instrumental Variable Approach

This table estimates how average maturity of new loans in the fiscal year before CEO departure differs from the rest of CEOs' time in office, using the instrumental variable approach. In the first stage in Columns (1) and (3), the dependent variable is *1 Year to CEO Depart*, a dummy variable equal to one if the CEO departed the following year. In the second stage in Columns (2) and (4), the dependent variable is average maturity of new loans at the firm-year level, weighting loans equally. *Firm Age since IPO* is automatically omitted by the statistical program in Columns (3)-(4). See Table A1 for other variable definitions. T-statistics are in parentheses in Columns (1) and (3), and z-statistics in (2) and (4). Standard errors are corrected for clustering at the firm level. ***, ** and * denote statistical significance at 1%, 5% and 10% levels.

Dependent Var:	1st Stage: 1 Year to CEO Depart	2nd Stage: Avg New Loan Maturity	1st Stage: 1 Year to CEO Depart	2nd Stage: Avg New Loan Maturity
	(1)	(2)	(3)	(4)
CEO Depart Probability	0.0056***		0.0048***	
	(7.98)		(6.55)	
1 Year to CEO Depart		-1.5152***		-1.4206**
		(-3.18)		(-2.35)
CEO Age	-0.0028	0.0043	0.0472*	0.0167
	(-0.85)	(0.36)	(1.81)	(0.16)
CEO Tenure (Years)	0.0405***	0.1080***	0.0051	0.0559
	(7.49)	(3.71)	(0.18)	(0.51)
lag Log(Assets)	-0.2706***	-0.3456	-0.4508***	-0.7558
	(-3.37)	(-0.87)	(-4.36)	(-1.58)
lag Log(Assets) Square	0.0177***	0.0131	0.0238***	0.0477*
	(3.58)	(0.56)	(3.66)	(1.71)
lag Leverage	0.1664*	0.0179	0.3355***	0.0508
	(1.72)	(0.04)	(3.30)	(0.11)
lag Asset Maturity	-0.0000	-0.0023***	-0.0002*	-0.0023***
	(-0.12)	(-2.95)	(-1.75)	(-3.09)
lag Market/Book	-0.0045	-0.0396	-0.0076	-0.0123
	(-0.61)	(-1.07)	(-1.03)	(-0.39)
lag Abnormal Earnings	-0.0056	0.0126	-0.0122	0.0202
	(-0.61)	(0.32)	(-1.34)	(0.50)
lag Stck Ret Std Dev	-0.2239	-1.5116*	-0.1391	-1.4584*
	(-1.08)	(-1.73)	(-0.68)	(-1.66)
lag Rated Dummy	0.0661*	0.1221	0.0296	-0.1640
	(1.68)	(0.80)	(0.69)	(-0.86)
lag High Zscore Dummy	-0.0583	-0.2361	-0.0448	-0.2029
	(-1.52)	(-1.53)	(-1.16)	(-1.27)
Firm Age since IPO	0.0019	-0.0202	Omitted	Omitted
	(0.47)	(-1.29)		
lag R&D/Sales	0.0207	-0.3067	-0.0187	-0.3441
	(0.42)	(-1.44)	(-0.34)	(-1.37)
lag R&D Missing Dummy	0.0007	0.0737	0.0269	0.2486
	(0.01)	(0.30)	(0.42)	(0.81)
Firm FE, Year FE	✓	✓		
Firm-CEO FE, Year FE			✓	✓
N	3002	3002	3002	3002
Cragg-Donald Wald F stat	52.858		52.730	

Table 5: New Loan Maturities before Retirement and Heir Apparent Successor

This table estimates how average maturity of new loans change as CEOs approach likely retirements and how such change is different between CEOs with and without heir apparent. The dependent variable is equal-weighted average maturity of new loans at the firm-year level. I only include CEOs who departed at age 64 or older. The control variables are those in Panel A of table 3. See Table A1 for variable definitions. T-statistics are in parentheses. Standard errors are corrected for clustering at the firm level. ***, ** and * denote statistical significance at 1%, 5% and 10% levels.

Dependent Var: Average Loan Maturity (Firm-Year Level)		
Include if CEO Eventually Left at Age:	**>=64**	
	(1)	(2)
Years to CEO Depart (3->1)*Have Heir Successor	-0.7093**	
	(-2.07)	
Years to CEO Depart (3->1)	0.2834	
	(1.33)	
1 Year to CEO Depart*Have Heir Successor		1.1949*
		(1.71)
1 Year to CEO Depart		-0.6692*
		(-1.76)
Have Heir Successor	1.3683	-0.5775**
	(1.58)	(-2.11)
Controls	✓	✓
Industry FE, Year FE	✓	✓
N	211	211

Table 6: New Loan Maturities before Retirement and CEO Stock Ownership

This table estimates how average maturity of new loans change as CEOs approach likely retirements and how such change is different between CEOs with high and low stock ownership of the firm. The dependent variable is equal-weighted average maturity of new loans at the firm-year level. The tests in this table only include CEOs who left at 64 or older. The dummy variable, *High Ownership*, equals one if in the preceding year, the CEO owns more than 0.37% of the firm's shares (median) in Column (1), 0.85% (75 percentile) in Column (2), 1.6% in Column (3), 5% in Column (4), and zero otherwise. The control variables are those in Panel A of table 3. See Table A1 for variable definitions. T-statistics are in parentheses. Standard errors are corrected for clustering at the firm level. ***, ** and * denote statistical significance at 1%, 5% and 10% levels. The last row of the table is the p value of the F test on whether the sum of the first two coefficients is statistically significantly different from zero.

Dependent Var:	**Average Loan Maturity (Firm-Year Level)**		
Include if CEO Eventually Left at Age:	**>=64**		
High Ownership:	**>0.37% (Median)**	**>0.85% (75 Pctl)**	**>1.6% (85 Pctl)**
	(1)	(2)	(3)
(a) 1 Year to CEO Depart*High Ownership	0.7590**	0.9168***	1.0796**
	(2.12)	(2.62)	(2.08)
(b) High Ownership	0.2342	-0.1109	0.0317
	(1.11)	(-0.44)	(0.07)
(c) 1 Year to CEO Depart	-0.5810**	-0.4971**	-0.3894*
	(-2.47)	(-2.16)	(-1.87)
Controls	✓	✓	✓
Firm FE, Year FE	✓	✓	✓
N	863	863	863
Prob > F for H0: (a)+(b)=0	0.0209	0.0466	0.0726

Table 7: When do Loans Mature Relative to CEO Departure

This table estimates how the percentage of loans (initiated under a CEO) that mature in each of the three six-month periods after the CEO departure differs between CEOs who likely retired and other CEOs. The dependent variable is loans initiated under CEO *i* that mature in period *t*, as a percentage of all loans initiated by CEO *i*. Both the numerator and the denominator in the dependent variable are equal-weighted in Columns (1)-(4), loan size-weighted in (5)-(8). The dummy variable *Retire* in Columns (1), (2), (5) and (6) equals one if the CEO eventually left office at age 64, 65 or 66 in Columns (1), (2), (5) and (6), and if the CEO eventually left office at 64 or older in (3), (4), (7) and (8). Columns (2), (4), (6) and (8) only include loans initiated in the calendar year before CEO departure. See Table A1 for variable definitions. T-statistics are in parentheses. Standard errors are corrected for clustering at the CEO departure year level. ***, ** and * denote statistical significance at 1%, 5% and 10% levels.

Dependent Var:	Loan Mature(i,j)*100/Total Loan Issued(i,j)							
	Equal Weighted				Value Weighted			
Retire=1 if CEO Eventually Left at Age:	64-66		>=64		64-66		>=64	
		Loans Initiated the Year before CEO Departure		Loans Initiated the Year before CEO Departure		Loans Initiated the Year before CEO Departure		Loans Initiated the Year before CEO Departure
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1-6 Months After CEO Left	2.1321**	4.7954**	0.9134	1.8815	2.7634***	4.7578**	1.6112**	1.6986
*Retire	(2.12)	(2.01)	(1.21)	(1.09)	(2.71)	(1.98)	(2.05)	(1.03)
7-12 Months After CEO Left	-0.2876	0.2178	-0.8168*	-0.1308	-0.7517	0.0321	-1.2607***	-0.2590
*Retire	(-0.43)	(0.15)	(-1.65)	(-0.11)	(-1.35)	(0.02)	(-2.60)	(-0.21)
13-18 Months After CEO Left	-2.5423***	-1.8453*	-1.5851**	-2.6020***	-2.5969***	-1.8222*	-1.5363**	-2.5786***
*Retire	(-3.44)	(-1.84)	(-2.13)	(-3.34)	(-4.58)	(-1.74)	(-2.37)	(-3.38)
1-6 Months After CEO Left	-0.0408	-0.0829	-0.0534	-0.0990	-0.0796**	-0.1037	-0.1046**	-0.1165
*CEO Total Tenure	(-1.03)	(-0.69)	(-1.21)	(-0.80)	(-1.99)	(-0.89)	(-2.30)	(-0.96)
7-12 Months After CEO Left	-0.0601	-0.0991	-0.0442	-0.0957	-0.0961*	-0.0915	-0.0725	-0.0865
*CEO Total Tenure	(-1.15)	(-1.48)	(-0.80)	(-1.24)	(-1.70)	(-1.43)	(-1.28)	(-1.14)
13-18 Months After CEO Left	-0.0439	0.0309	-0.0188	0.0729	-0.0788	0.0173	-0.0549	0.0589
*CEO Total Tenure	(-0.67)	(0.39)	(-0.27)	(0.88)	(-1.29)	(0.22)	(-0.87)	(0.72)
1-6 Months After CEO Left	5.0028***	7.1824***	5.2293***	7.6878***	5.4193***	7.7272***	5.6690***	8.2530***
	(7.99)	(3.17)	(8.47)	(3.58)	(8.55)	(3.48)	(9.18)	(3.90)
7-12 Months After CEO Left	6.2451***	5.2781***	6.2856***	5.3324***	6.5802***	5.2869***	6.5965***	5.3296***
	(7.02)	(4.76)	(7.21)	(4.98)	(7.24)	(5.18)	(7.29)	(5.48)
13-18 Months After CEO Left	6.3749***	2.2328***	6.1557***	2.3103***	6.6400***	2.4590***	6.4076***	2.5368***
	(6.52)	(3.07)	(6.34)	(3.31)	(7.00)	(3.37)	(6.80)	(3.59)
Retire	0.0157	-0.0277	0.0215	0.0075	0.0068	-0.0163	0.0149	0.0140
	(1.04)	(-0.83)	(1.54)	(0.20)	(0.48)	(-0.50)	(1.12)	(0.38)
CEO Total Tenure	-0.0061***	-0.0042	-0.0065***	-0.0045	-0.0063***	-0.0048*	-0.0066***	-0.0051*
	(-5.13)	(-1.45)	(-4.78)	(-1.49)	(-5.68)	(-1.73)	(-5.27)	(-1.76)
Firm FE	✓	✓	✓	✓	✓	✓	✓	✓
Year of Departure FE	✓	✓	✓	✓	✓	✓	✓	✓
N	232673	118960	232673	118960	232673	118960	232673	118960

Table 8: Loan Pricing and Maturity—Retirement Sample

This table uses system of simultaneous equations to estimate the change in loan spreads due to change in loan maturity associated with CEO retirement. Columns (1), (2), (5) and (6) use loans initiated under CEOs who eventually departed between age 64 and 66; Columns (3), (4), (7) and (8) use loans initiated under CEOs who eventually departed at age 64 and older. I control for the fixed effects of the most frequent purposes of loans: CP Backup, Corp. Purposes, Debt Repay, LBO, Working Capital, and Takeover, each of which accounts for at least 1.8% of the loans. The remaining categories of types together account for less than 7% of all the loans. See Table A1 for variable definitions. Z-statistics are in parentheses. ***, ** and * denote statistical significance at 1%, 5% and 10% levels.

Include Loans Initiated under CEOs Who Eventually Left at Age:	64-66		>=64		64-66		>=64	
Dependent Var: (Loan Level)	**Loan Maturity**	**Loan Spreads**	**Loan Maturity**	**Loan Spreads**	**Loan Maturity**	**Loan Spreads**	**Loan Maturity**	**Loan Spreads**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Loan Spread	-0.0068***		-0.0065***		-0.0070***		-0.0064***	
	(-3.78)		(-3.72)		(-3.83)		(-3.80)	
Years to CEO Depart (3->1)	0.2113*		0.0714					
	(1.82)		(0.91)					
1 Year to CEO Depart					-0.4296**		-0.2734*	
					(-2.14)		(-1.91)	
Loan Maturity		23.4585***		19.7713***		23.7979***		19.5499***
		(4.68)		(4.23)		(4.70)		(4.32)
Credit Spread		1.3220***		1.2193***		1.3246***		1.2177***
		(8.04)		(7.72)		(8.02)		(7.69)
CEO Age	0.0466**	2.5407**	0.0232**	1.7107**	0.0405*	2.5393**	0.0247**	1.7123**
	(2.00)	(2.52)	(1.97)	(2.53)	(1.96)	(2.52)	(2.12)	(2.54)
CEO Tenure (Years)	0.0199	-0.3523	0.0158	-1.6633*	0.0195	-0.3583	0.0150	-1.6581*
	(0.86)	(-0.34)	(0.97)	(-1.87)	(0.84)	(-0.35)	(0.93)	(-1.88)
lag Log(Assets)	-0.9013	-25.5858	-0.2226	-56.0595**	-0.9316	-25.3917	-0.2368	-56.0310**
	(-1.35)	(-0.66)	(-0.47)	(-1.98)	(-1.39)	(-0.65)	(-0.50)	(-1.98)
lag Log(Assets) Square	0.0260	0.8064	-0.0044	2.4801	0.0279	0.8014	-0.0035	2.4760
	(0.70)	(0.38)	(-0.16)	(1.53)	(0.74)	(0.38)	(-0.12)	(1.53)
lag Leverage	0.6299	101.4185***	0.5981	95.8206***	0.6508	101.4239***	0.5896	95.8198***
	(0.96)	(3.09)	(1.22)	(3.58)	(0.99)	(3.08)	(1.21)	(3.58)
lag Asset Maturity	-0.0184*	-0.1523	-0.0123	-0.3136	-0.0184*	-0.1474	-0.0124	-0.3156
	(-1.83)	(-0.25)	(-1.48)	(-0.62)	(-1.84)	(-0.24)	(-1.49)	(-0.62)

lag Market/Book	-0.2527**	-23.3376***	-0.2054***	-14.4616***	-0.2513**	-23.3113***	-0.2020***	-14.4834***
	(-2.23)	(-5.63)	(-3.11)	(-3.73)	(-2.23)	(-5.61)	(-3.07)	(-3.74)
lag Abnormal Earnings	0.1325**	16.3894***	0.1494*	9.2964	0.1381**	16.3864***	0.1484*	9.3149
	(1.98)	(3.74)	(1.73)	(1.49)	(2.12)	(3.73)	(1.76)	(1.50)
lag Stck Ret Std Dev	0.0066	111.7780	1.6094	148.6493	0.1325	111.8708	1.5833	148.7878
	(0.00)	(0.69)	(1.16)	(1.47)	(0.07)	(0.69)	(1.15)	(1.47)
lag Rated Dummy	0.0874	-15.0672	-0.0438	5.5387	0.0762	-15.1152	-0.0453	5.5217
	(0.31)	(-0.78)	(-0.22)	(0.40)	(0.27)	(-0.78)	(-0.23)	(0.40)
lag High Zscore Dummy	-0.3310	-50.0801***	-0.3376*	-59.3199***	-0.3297	-50.0762***	-0.3281	-59.3106***
	(-1.43)	(-2.64)	(-1.66)	(-3.62)	(-1.43)	(-2.63)	(-1.63)	(-3.62)
Firm Age since IPO	0.0020	-0.4096	0.0051	-0.2747	0.0018	-0.4110	0.0050	-0.2734
	(0.44)	(-1.64)	(1.38)	(-1.22)	(0.40)	(-1.64)	(1.36)	(-1.22)
lag R&D/Sales	0.5254	-39.3306	0.1290	14.1896	0.3877	-39.5593	0.0652	14.1929
	(0.35)	(-0.41)	(0.09)	(0.14)	(0.26)	(-0.41)	(0.05)	(0.14)
lag R&D Missing Dummy	0.3139*	-10.8194	0.2982**	-9.7116	0.3037	-10.9302	0.2958**	-9.6403
	(1.67)	(-1.06)	(2.01)	(-1.21)	(1.60)	(-1.06)	(2.00)	(-1.21)
Term Spread	0.0005	0.1995***	0.0001	0.1993***	0.0005	0.1998***	0.0001	0.1990***
	(0.51)	(3.34)	(0.17)	(4.38)	(0.53)	(3.34)	(0.12)	(4.39)
Log Loan Size	0.1708**	-7.5866	0.0438	-8.4153**	0.1676**	-7.6520	0.0450	-8.3964**
	(2.16)	(-1.61)	(0.59)	(-2.49)	(2.12)	(-1.62)	(0.61)	(-2.50)
Performance Pricing Dummy	0.0845	-33.6157***	0.0823	-24.3617***	0.0839	-33.7050***	0.0897	-24.3154***
	(0.53)	(-3.39)	(0.62)	(-3.16)	(0.53)	(-3.40)	(0.69)	(-3.16)
Term Loan Dummy	1.8898***	23.8253**	1.7328***	26.1371***	1.8823***	24.3281**	1.7368***	25.8297***
	(9.75)	(2.16)	(10.72)	(2.68)	(9.82)	(2.20)	(10.65)	(2.62)
Revolver/Line< 1 Yr Dummy	-2.9372***	71.3391***	-2.7892***	69.7980***	-2.9386***	70.3320***	-2.7953***	70.4366***
	(-11.05)	(3.14)	(-10.58)	(2.70)	(-11.28)	(3.11)	(-10.75)	(2.69)
Loan Purpose FE	✓	✓	✓	✓	✓	✓	✓	✓
N	1474	1474	2249	2249	1474	1474	2249	2249

Table 9: Acquisitions before CEO Departure

This table estimates how firms' acquisition activities change as CEOs approach departure. Panel A uses OLS regression. The dependent variable is the dollar amount of all acquisitions no less than 5% of acquirers' lagged assets scaled by acquirers' assets. *NonRetire* is a dummy variable equal to one if the CEO departed office younger than 64 or older than 66 in (1) and (3), and if the CEO departed younger than 64 in (2) and (4). T-statistics are in parentheses. Panel B uses instrumental variable regression. In the first stage in Columns (1) and (3), the dependent variable is *1 Year to CEO* Depart, a dummy variable equal to one if the CEO departed the following calendar year. In the second stage in Columns (2) and (4), the dependent variable is firms' cash holdings scaled by assets. T-statistics are in parentheses in Columns (1) and (3), and z-statistics in (2) and (4). Other variable definitions are in Table A1. Standard errors are corrected for clustering at the firm level. ***, ** and * denote statistical significance at 1%, 5% and 10% levels.

Panel A: OLS

Dependent Var:	**Acquisition/At**			
NonRetire = 1 if CEO Depart:	**<64 or >66**	**<64**	**<64 or >66**	**<64**
	(1)	(2)	(3)	(4)
Years to CEO Depart (3->1)	0.0099*	0.0106**		
	(1.94)	(2.40)		
Years to CEO Depart (3->1)*NonRetire	-0.0076	-0.0094		
	(-0.97)	(-1.07)		
1 Year to CEO Depart			-0.0189**	-0.0170**
			(-2.33)	(-2.52)
1 Year to CEO Depart			0.0100	0.0085
*NonRetire			(0.66)	(0.51)
lag Industry-adj Roa	0.1851**	0.1852**	0.1848**	0.1848**
	(2.04)	(2.05)	(2.05)	(2.05)
lag Industry-adj Stock Ret	0.0009	0.0009	0.0008	0.0008
	(0.11)	(0.10)	(0.10)	(0.10)
lag Market/Book	0.0256	0.0256	0.0256	0.0256
	(1.20)	(1.20)	(1.20)	(1.20)
lag Leverage	-0.0250	-0.0253	-0.0247	-0.0247
	(-0.59)	(-0.60)	(-0.58)	(-0.58)
lag Dividend Dummy	0.0013	0.0017	0.0010	0.0012
	(0.12)	(0.17)	(0.10)	(0.11)
lag Log(Assets)	-0.0280	-0.0280	-0.0280	-0.0280
	(-0.60)	(-0.60)	(-0.60)	(-0.60)
CEO Age	0.0324	0.0326	0.0329	0.0329
	(0.60)	(0.60)	(0.61)	(0.61)
Tenure (Years)	0.0124	0.0124	0.0122	0.0123
	(0.23)	(0.23)	(0.22)	(0.22)
Firm-CEO FE, Year FE	✓	✓	✓	✓
N	9760	9760	9760	9760

Panel B: Instrumental Variable Approach

Dependent Var:	1st Stage: 1 Year to CEO Depart	2nd Stage: Acquisition/At	1st Stage: 1 Year to CEO Depart	2nd Stage: Acquisition/At
	(1)	(2)	(3)	(4)
CEO Depart Probability	0.0066***		0.0068***	
	(18.60)		(20.75)	
1 Year to CEO Depart		-0.0579***		-0.0503***
		(-2.80)		(-2.69)
lag Industry-adj Roa	-0.0122	0.1839**	-0.0785**	0.0577***
	(-0.26)	(2.24)	(-2.08)	(3.33)
lag Industry-adj Stock Ret	-0.0137**	0.0007	-0.0126**	0.0039
	(-2.49)	(0.09)	(-2.44)	(0.55)
lag Market/Book	0.0037	0.0245	0.0039*	0.0279**
	(1.05)	(1.40)	(1.77)	(2.14)
lag Leverage	0.1304***	-0.0359	0.0503	-0.0273
	(2.69)	(-0.94)	(1.14)	(-0.87)
lag Dividend Dummy	-0.0380*	-0.0016	0.0043	-0.0005
	(-1.68)	(-0.18)	(0.22)	(-0.06)
lag Log(Assets)	-0.0266**	-0.0270	0.0238**	-0.0202
	(-2.03)	(-0.70)	(2.57)	(-1.41)
CEO Age	-0.0020	0.0085	-0.0030**	-0.0002
	(-0.25)	(1.09)	(-2.16)	(-0.35)
Tenure (Years)	0.0555***	-0.0020	0.0309***	0.0037**
	(6.56)	(-0.20)	(14.26)	(2.18)
Firm-CEO FE, Year FE	✓	✓		
Firm FE, Year FE			✓	✓
N	9601	9601	9601	9601
Cragg-Donald Wald F stati	393.173		338.945	

Table 10: Cash Holdings before CEO Departure

This table estimates how firms' cash holdings change as CEOs approach departure. Panel A uses OLS regression. The dependent variable is firms' cash holdings scaled by assets, and t-statistics are in parentheses in Panel A. *NonRetire* is a dummy variable equal to one if the CEO departed office younger than 64 or older than 66 in (1) and (3), and if the CEO departed younger than 64 in (2) and (4). T-statistics are in parentheses. Panel B uses instrumental variable regression. In the first stage in Columns (1) and (3), the dependent variable is *1 Year to CEO* Depart, a dummy variable equal to one if the CEO departed the following calendar year. In the second stage in Columns (2) and (4), the dependent variable is firms' cash holdings scaled by assets. T-statistics are in parentheses in Columns (1) and (3), and z-statistics in (2) and (4). Other variable definitions are in Table A1. Standard errors are corrected for clustering at the firm level. ***, ** and * denote statistical significance at 1%, 5% and 10% levels.

Panel A: OLS Regression

Dependent Var:	Cash/At			
NonRetire = 1 if CEO Depart:	**<64 or >66**	**<64**	**<64 or >66**	**<64**
	(1)	(2)	(3)	(4)
Years to CEO Depart (3->1)	-0.0068**	-0.0065**		
	(-1.96)	(-2.04)		
Years to CEO Depart (3->1)*NonRetire	0.0092**	0.0097***		
	(2.53)	(3.23)		
1 Year to CEO Depart			0.0091*	0.0086*
			(1.81)	(1.95)
1 Year to CEO Depart *NonRetire			-0.0114**	-0.0121**
			(-2.05)	(-2.54)
CEO Age	0.0532	0.0530	0.0528	0.0527
	(0.84)	(0.85)	(0.84)	(0.83)
CEO Tenure (Years)	-0.0005	-0.0006	-0.0001	-0.0001
	(-0.01)	(-0.01)	(-0.00)	(-0.00)
Log(Assets)	0.0925	0.0917	0.0931	0.0928
	(1.60)	(1.58)	(1.61)	(1.61)
Leverage	-0.0009	-0.0009	-0.0009	-0.0009
	(-0.85)	(-0.84)	(-0.87)	(-0.86)
R&D/Sales	0.0002	0.0002	0.0002	0.0001
	(0.43)	(0.41)	(0.42)	(0.40)
R&D Missing Dummy	-0.0010	-0.0003	-0.0009	-0.0006
	(-0.10)	(-0.03)	(-0.09)	(-0.06)
Market/Book	0.0049***	0.0049***	0.0049***	0.0049***
	(2.81)	(2.80)	(2.81)	(2.80)
Capx/At	-0.2990***	-0.2987***	-0.2976***	-0.2971***
	(-6.11)	(-6.07)	(-6.07)	(-6.04)
Net Working Capital	-0.3664***	-0.3662***	-0.3659***	-0.3658***
	(-10.64)	(-10.63)	(-10.62)	(-10.62)
Cash Flow	0.0266	0.0274	0.0266	0.0269
	(0.62)	(0.64)	(0.62)	(0.63)
Rated Dummy	-0.0241***	-0.0242***	-0.0240***	-0.0241***
	(-2.80)	(-2.81)	(-2.78)	(-2.78)
Cash Flow Volatility	-0.1305***	-0.1300***	-0.1310***	-0.1308***
	(-5.30)	(-5.28)	(-5.31)	(-5.31)
Industry Cash Flow Volatility	0.0006	0.0003	0.0003	0.0002
	(0.06)	(0.03)	(0.03)	(0.02)
Firm-CEO FE, Year FE	✓	✓	✓	✓
N	9750	9750	9750	9750

Panel B: Instrumental Variable Regression

Dependent Var:	1st Stage: 1 Year to CEO Depart	2nd Stage: Cash/At	1st Stage: 1 Year to CEO Depart	2nd Stage: Cash/At
	(1)	(2)	(3)	(4)
CEO Depart Probability	0.0072***		0.0074***	
	(18.78)		(20.86)	
1 Year to CEO Depart		0.0247**		0.0304**
		(2.09)		(2.36)
R&D/Sales	-0.0037***	0.0003	0.0000	0.0006
	(-5.78)	(0.78)	(0.00)	(1.31)
R&D Missing Dummy	0.0690	-0.0024	0.0239	-0.0079
	(1.64)	(-0.27)	(0.69)	(-0.77)
Market/Book	-0.0081**	0.0052***	-0.0062**	0.0063***
	(-2.39)	(3.36)	(-2.47)	(4.81)
Capx/At	-0.1459	-0.2896***	-0.1121	-0.3516***
	(-1.08)	(-6.51)	(-0.83)	(-7.44)
Net Working Capital	0.0421	-0.3698***	0.0585	-0.3495***
	(0.55)	(-12.13)	(0.86)	(-11.96)
Cash Flow	-0.1657**	0.0271	-0.2460***	0.0243
	(-2.45)	(0.75)	(-3.91)	(0.70)
Rated Dummy	-0.0963***	-0.0242***	-0.0146	-0.0313***
	(-6.39)	(-3.35)	(-1.33)	(-5.89)
Cash Flow Volatility	0.1223**	-0.1359***	0.0365	-0.1455***
	(2.27)	(-6.17)	(0.74)	(-6.68)
Industry Cash Flow Volatility	0.0307	-0.0008	0.0335	-0.0035
	(1.22)	(-0.09)	(1.53)	(-0.43)
Log(Assets)	0.1192	0.0879	-0.1804*	0.0843**
	(1.20)	(1.63)	(-1.66)	(2.26)
Leverage	0.0048	-0.0013	0.0011	-0.0001
	(0.69)	(-1.35)	(0.33)	(-0.11)
CEO Age	0.0111	-0.0025	-0.0028*	-0.0008
	(1.14)	(-0.94)	(-1.78)	(-1.58)
Tenure (Years)	0.0521***	0.0002	0.0353***	-0.0005
	(4.97)	(0.06)	(14.24)	(-0.42)
Firm-CEO FE, Year FE	✓	✓		
Firm FE, Year FE			✓	✓
N	9601	9601	9601	9601
Cragg-Donald Wald F statistic	445.566		402.511	

Appendix

Appendix A1

Table A1: Variable Definitions

Loan Maturity	number of years the facility will be active from signing date to expiration date, from *Dealscan* facility file
Years to CEO Depart (3->1)	equals three if the CEO for firm *i* in calendar year *t* leaves in calendar year *t+3* or later; it equals two if the CEO leaves in calendar year *t+2,* and one if the CEO leaves in year *t+1*
1 Year to CEO Depart	equals one in the calendar year before the year of CEO departure, and zero otherwise
NonRetire	equals one if the CEO is in the less-likely-retirement sample, leaving office before turning 64 or after 66 (alternatively, before 64), and zero otherwise
R&D/Sales	R&D scaled by sales, zero if missing
Market/Book	market value scaled of equity by book value of equity
Log(Assets)	natural log of assets
Leverage	sum of long-term debt - total and debt in current liabilities, scaled by assets
CEO Age	the age of the CEO in office
Asset Tangibility	property, plant and equipment - total (net), scaled by assets
Asset Maturity	((PPEGT/AT)*(PPEGT/DP)) + ((ACT/AT)*(ACT/COGS))

Abnormal Earnings	(IBADJ - lag_IBADJ)/(LAG_PRCC_F *LAG_CSHPRI), where lag_IBADJ is the previous year's IBADJ
High Zscore	equals one if zscore is higher than 1.8, and zero otherwise
Speculative	equals one if S&P Long-Term Issuer Rating is speculative or missing, zero otherwise
CEO Delta	CEO Pay-Performance Expected Sensitivity (Delta), dollar change in CEO wealth for a 1% change in stock price (using entire portfolio of stocks and options) computed following Core and Guay (2002), downloaded from Lalitha Naveen's website
CEO Vega	expected dollar change in CEO wealth for a 0.01 change in stock return volatility (using entire portfolio of options) computed following Core and Guay (2002), downloaded from Lalitha Naveen's website
Top Mngt Ownership	the number of shares owned by the top five executives divided by the number of shares outstanding
CEO Tenure (Years)	number of years the CEO has been in office
CEO Total Tenure (Years)	total number of years the CEO stayed in office before departure, missing for those still in office as of the end of 2016
CEO Depart Probability	for each SIC-2 digit industry, calculated as the number of CEOs who leaving office at age *n* or *n+1*, conditional on ever being in office at age *n*, divided by the number of CEOs ever in office at age *n*. If there is only one CEO at a specific age, in a specific industry, the probability is set as missing for that age in that

	industry.
CEO Age > 62	dummy variable that equals one if CEO age is older than 62, zero otherwise.
CEO Age 58-62	dummy variable that equals one if CEO age is between 58 and 62 (including 58 and 62), zero otherwise.
CEO Age 53-57	dummy variable that equals one if CEO age is between 53 and 57 (including 53 and 57), zero otherwise.
Having Heir	equals one if the succeeding CEO is an heir apparent, and zero otherwise
High Ownership	equals one if the CEO's stock ownership of the firm averaged over her entire tenure is higher than 1.6%, or alternatively 5%
1-6 (7-12,13-18) Months After	variable equal to one if the six-month period *t* is the first (second, third) six months after CEO departure, and zero otherwise. equals one if the CEO leaves at age 64-66 (or 64 or older), and zero otherwise
48-37 (36-25) Months Before	equals one for the period of 48-37 (36-25) months before the retirement, and zero otherwise
Loan Spread	All-in-Drawn Spread (AIS) over LIBOR at the origination date, from the *Dealscan* current pricing file, in basis point
Credit Spread	difference between the yields of AAA and BAA corporate bonds
Performance Pricing	equals one if the interest rate of the loan is tied to an indicator (e.g., leverage, interest coverage ratio) of the firm's performance, from the *Dealscan* performance pricing file

Loan Type	type of the loan (facility): term loan, revolver, etc.
Loan Purpose	Purpose of the loan (facility): takeover, working capital, debt repayment, etc.
Loan Size	the amount of the facility, in $M, from *Dealscan* facility data set
Term Spread	the difference between the 10-year Treasury yield and the 2-year Treasury yield (data source: Federal Reserve Board of Governors) measured in the month prior to loan initiation.
Firm Age	age of the firm since first apparance in CRSP with non-missing stock return
ROA	earnings before interest, tax, and depreciation scaled by the total book assets
Payout Ratio	dividend per share scaled by earnings per share

Table A2: Firm-Year Average Maturity of New Loans before CEOs Depart

This table estimates how average maturity of new loans change as CEOs approach departure. The dependent variable is average maturity of new loans at the firm-year level, weighting loans equally. *Retire* is a dummy variable equal to one if the CEO departed office younger than 64 or older than 66 in (1), and if the CEO departed younger than 64 in (2). Other variable definitions are in Table A1. T-statistics are in parentheses. Standard errors are corrected for clustering at the firm level. ***, ** and * denote statistical significance at 1%, 5% and 10% levels.

Dependent Var:	Equal-Weighted Avg New Loan Maturity	
Retire=1 if CEO Eventually Left:	**64-66**	**>64**
	(1)	(2)
1 Year to CEO Depart	-0.2011*	-0.2274*
	(-1.66)	(-1.76)
1 Year to CEO Depart *Retire	-0.3651	-0.1409
	(-1.53)	(-0.68)
Retire	-0.0382	-0.0043
	(-0.19)	(-0.02)
CEO Age	0.0032	0.0019
	(0.24)	(0.12)
CEO Tenure (Years)	0.0521**	0.0527**
	(2.38)	(2.31)
lag Log(Assets)	0.1353	0.1478
	(0.33)	(0.36)
lag Log(Assets) Square	-0.0161	-0.0169
	(-0.65)	(-0.68)
lag Leverage	-0.2678	-0.2686
	(-0.61)	(-0.61)
lag Asset Maturity	-0.0018**	-0.0018**
	(-2.15)	(-2.16)
lag Market/Book	-0.0296	-0.0302
	(-0.76)	(-0.78)
lag Abnormal Earnings	0.0433	0.0438
	(0.46)	(0.46)
lag Stck Ret Std Dev	-0.6162	-0.6162
	(-0.60)	(-0.60)
lag Rated Dummy	-0.0365	-0.0385
	(-0.24)	(-0.25)
lag High Zscore Dummy	-0.2091	-0.2074
	(-1.26)	(-1.25)
Firm Age since IPO	0.1987	0.1959
	(0.77)	(0.76)
lag R&D/Sales	-0.1883	-0.2121
	(-0.14)	(-0.16)
lag R&D Missing Dummy	0.1181	0.1109
	(0.40)	(0.38)
Firm FE, Year FE	✓	✓
N	3072	3072

Table A3: Firm-Year Average Maturity of New Bonds before CEO Departure

This table estimates how average maturity of new bonds changes as CEOs approach departure. The dependent variable is average maturity of new bonds at the firm-fiscal year level, weighting bonds equally in Columns (1)-(4), and weighting bonds by bond size in Columns (5)-(8) in Panel A. *NonRetire* is a dummy variable equal to one if the CEO departed office younger than 64 or older than 66 in (1), (3) and (5), and if the CEO departed younger than 64 in (2), (4) and (6).

Dependent Var:	**Equal-Weighted Avg New Bond Maturity**				**Size-Weighted Avg New Bond Maturity**			
NonRetire=1 if CEO Eventually Left:	**<64 or >66**	**<64**	**<64 or >66**	**<64**	**<64 or >66**	**<64**	**<64 or >66**	**<64**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Years to CEO Depart (3->1)	0.8495	0.9927*			0.9260	1.0541*		
	(1.24)	(1.67)			(1.37)	(1.78)		
Years to CEO Depart (3->1)*NonRetire	-0.8663	-1.1940			-1.0002	-1.3225*		
	(-1.08)	(-1.61)			(-1.25)	(-1.79)		
1 Year to CEO Depart			-1.9389	-1.9948*			-1.9312	-1.9773*
			(-1.46)	(-1.78)			(-1.47)	(-1.79)
1 Year to CEO Depart *NonRetire			2.3107	2.6175*			2.3387	2.6417*
			(1.44)	(1.80)			(1.45)	(1.80)
NonRetire	5.2979**	4.7630**	2.6849	1.2774	5.3084**	4.8116**	2.3610	1.0075
	(2.18)	(2.21)	(1.55)	(0.81)	(2.24)	(2.27)	(1.37)	(0.64)
CEO Age	0.0813	0.0724	0.0760	0.0633	0.0844	0.0735	0.0787	0.0636
	(0.48)	(0.47)	(0.46)	(0.41)	(0.51)	(0.48)	(0.48)	(0.41)
CEO Tenure (Years)	0.1468	0.1483	0.1304	0.1320	0.1406	0.1431	0.1256	0.1283
	(0.87)	(0.88)	(0.78)	(0.80)	(0.82)	(0.84)	(0.74)	(0.77)
lag Log(Assets)	6.5269	6.2292	6.5033	6.2063	6.5123	6.2489	6.5272	6.2617
	(1.19)	(1.12)	(1.19)	(1.12)	(1.15)	(1.10)	(1.16)	(1.10)
lag Log(Assets) Square	-0.3286	-0.3103	-0.3290	-0.3112	-0.3154	-0.2984	-0.3184	-0.3019
	(-1.11)	(-1.04)	(-1.12)	(-1.05)	(-1.02)	(-0.96)	(-1.03)	(-0.97)
lag Leverage	-4.9704	-4.9279	-5.0104	-4.9684	-4.9540	-4.8613	-4.9759	-4.9131
	(-1.19)	(-1.19)	(-1.20)	(-1.19)	(-1.18)	(-1.16)	(-1.18)	(-1.17)
lag Asset Maturity	0.1426	0.1471	0.1421	0.1463	0.1262	0.1302	0.1251	0.1292
	(1.33)	(1.31)	(1.31)	(1.30)	(1.29)	(1.28)	(1.27)	(1.27)
lag Market/Book	-0.6619	-0.6741	-0.6893	-0.6981	-0.7005	-0.7098	-0.7249	-0.7318
	(-1.05)	(-1.07)	(-1.09)	(-1.11)	(-1.10)	(-1.12)	(-1.14)	(-1.16)
lag Abnormal Earnings	0.0336	0.0222	0.0229	0.0438	0.0698	0.0523	0.0619	0.0800
	(0.03)	(0.02)	(0.02)	(0.04)	(0.06)	(0.04)	(0.05)	(0.07)

lag Stck Ret Std Dev	-0.5511	-0.7379	-0.1933	-0.5102	-0.3458	-0.4797	-0.0768	-0.3365
	(-0.07)	(-0.09)	(-0.02)	(-0.06)	(-0.04)	(-0.06)	(-0.01)	(-0.04)
lag Rated Dummy	0.5330	0.2820	0.5034	0.2143	0.5874	0.3485	0.5512	0.2803
	(0.24)	(0.13)	(0.23)	(0.10)	(0.26)	(0.15)	(0.25)	(0.13)
lag High Zscore Dummy	1.0925	1.2300	1.1052	1.2120	0.8208	0.9582	0.8237	0.9301
	(1.06)	(1.23)	(1.07)	(1.21)	(0.84)	(1.02)	(0.84)	(0.99)
Firm Age since IPO	-3.2879**	-3.5977**	-3.4322**	-3.6698**	-3.0132**	-3.3345**	-3.1220**	-3.3542**
	(-2.36)	(-2.46)	(-2.41)	(-2.47)	(-2.16)	(-2.29)	(-2.19)	(-2.27)
lag R&D/Sales	0.2519	0.4127	0.3023	0.4939	0.2138	0.3505	0.2644	0.4397
	(0.09)	(0.15)	(0.11)	(0.18)	(0.08)	(0.13)	(0.09)	(0.16)
lag R&D Missing Dummy	3.2757*	3.2513	3.3940*	3.2805	3.4432*	3.3733*	3.5448*	3.4017*
	(1.74)	(1.56)	(1.77)	(1.57)	(1.82)	(1.65)	(1.84)	(1.65)
lag CEO Delta	-0.0001	-0.0001	-0.0001	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
	(-0.42)	(-0.34)	(-0.41)	(-0.29)	(-0.31)	(-0.26)	(-0.30)	(-0.20)
lag CEO Vega	-0.0029	-0.0029	-0.0029	-0.0029	-0.0027	-0.0028	-0.0027	-0.0028
	(-1.58)	(-1.61)	(-1.59)	(-1.61)	(-1.52)	(-1.54)	(-1.51)	(-1.53)
lag Top Mngt Ownership	-0.0150	0.0007	-0.0122	0.0018	-0.0403	-0.0253	-0.0385	-0.0252
	(-0.08)	(0.00)	(-0.06)	(0.01)	(-0.20)	(-0.13)	(-0.19)	(-0.12)
Firm FE, Year FE	✓	✓	✓	✓	✓	✓	✓	✓
N	1303	1303	1303	1303	1303	1303	1303	1303

Table A4: Firm-Year Average Maturity of New Loans before CEO Departure, and CEO Inside Debt

This table estimates how average maturity of new loans change as CEOs approach departure. The dependent variable is average maturity of new loans at the firm-year level, weighting loans equally. The table only uses observations that have non-missing CEO inside debt. *NonRetire* is a dummy variable equal to one if the CEO departed office younger than 64 or older than 66 in odd columns, and if the CEO departed younger than 64 in even columns. (5)-(8) restrict sample to CEOs whose inside debt information is not missing. The control variables are those in Panel A of table 3. Other variable definitions are in Table A1. T-statistics are in parentheses. Standard errors are corrected for clustering at the firm level. ***, ** and * denote statistical significance at 1%, 5% and 10% levels.

Dependent Var:	**Average New Loan Maturity (Firm-Year Level)**							
	Controlling for CEO Inside Debt				**CEO Inside Debt not Missing**			
NonRetire=1 if CEO Eventually Left:	**<64 or >66**	**<64**	**<64 or >66**	**<64**	**<64 or >66**	**<64**	**<64 or >66**	**<64**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Years to CEO Depart (3->1)	0.1991	0.1769			0.2344	0.2143		
	(0.73)	(0.73)			(0.85)	(0.88)		
Years to CEO Depart (3->1)*NonRetire	-0.0749	-0.0493			-0.0866	-0.0646		
	(-0.26)	(-0.18)			(-0.29)	(-0.24)		
1 Year to CEO Depart			-0.5470	-0.5170			-0.5455	-0.5271
			(-1.01)	(-1.05)			(-1.01)	(-1.06)
1 Year to CEO Depart			0.3692	0.3320			0.3660	0.3439
*NonRetire			(0.61)	(0.58)			(0.60)	(0.60)
NonRetire	-0.7214	-0.8638	-1.0920	-1.1875	-0.6977	-0.8458	-1.0962	-1.2123
	(-0.70)	(-0.88)	(-1.07)	(-1.24)	(-0.69)	(-0.88)	(-1.07)	(-1.26)
lag CEO Inside Debt	-0.0705***	-0.0703***	-0.0728***	-0.0724***				
	(-5.49)	(-5.43)	(-6.18)	(-6.07)				
Controls	✓	✓	✓	✓	✓	✓	✓	✓
Firm FE, Year FE	✓	✓	✓	✓	✓	✓	✓	✓
N	764	764	764	764	764	764	764	764

Table A5: Firm-Year Average Maturity of New Loans and CEO Age Groups

This table estimates how average maturity of new loans is related to different CEO age categories. The dependent variable is average maturity of new loans at the firm-year level, weighting loans equally in Columns (1)-(2) and weighting by loan size in (3)-(4). The control variables are those in Panel A of table 3, excluding *CEO Age*. Other variable definitions are in Table A1. T-statistics are in parentheses. Standard errors are corrected for clustering at the firm level. ***, ** and * denote statistical significance at 1%, 5% and 10% levels.

Dependent Var:	**Avg New Loan Maturity**		**Size-Weighted Avg New Loan Maturity**	
	(1)	(2)	(3)	(4)
CEO Age > 62	-0.0085	-0.1983	-0.0195	-0.2072
	(-0.05)	(-0.93)	(-0.12)	(-0.96)
CEO Age 58-62	0.1695	0.0158	0.1451	-0.0075
	(1.29)	(0.09)	(1.10)	(-0.05)
CEO Age 53-57	0.1592	0.0886	0.1222	0.0349
	(1.28)	(0.60)	(1.00)	(0.24)
Controls		✓		✓
Firm FE, Year FE	✓	✓	✓	✓
N	3614	3072	3614	3072

Appendix B1: Loan Spreads before CEO Retirement

If uncertainty about new management is high before CEO retirement, then new loans taken out before CEO retirement likely have higher spreads. I test this prediction in Table B1 using the following specification at the individual loan level,

$$Loan\ Spreads_{i,l,t} = \alpha_1 \cdot Years\ to\ CEO\ Depart\ (3 \rightarrow 1)_{i,j} + \alpha_2 \cdot Years\ to\ CEO\ Depart\ (3 \rightarrow 1)_{i,j} * NonRetire_{i,j} + \gamma_a \cdot Control_{i,l,t} + \lambda_a \cdot Control_{i,t} + \delta_a \cdot Control_{i,j} + u_{i,l,t}. \quad (7)$$

The coefficient on $Years\ to\ CEO\ Depart\ (3 \rightarrow 1)$ captures the effect of an impending CEO retirement on loan spreads, controlling for loan maturity (included in $Control_{i,l,t}$). As noted in Section 5.D., this regression cannot estimate a causal effect of loan maturity on spreads. The coefficient on $Years\ to\ CEO\ Depart\ (3 \rightarrow 1)$ is not statistically significant, suggesting that, controlling for loan characteristics, the loan spreads do not increase before CEO retirement, against the hypothesis of successor uncertainty.

Another test of the successor uncertainty hypothesis is to see whether bond spreads increase for new bonds near CEO retirement. In untabulated results, I repeat Table B1, by using bond. The results suggest that bond spreads do not increase before CEO retirement, not supporting the hypothesis of successor uncertainty.

Table B1: New Loan Spreads before CEO Departure

This table estimates how spreads of new loans change as CEOs approach departure. The dependent variable is spreads of new loans at the loan level. *NonRetire* is a dummy variable equal to one if the CEO departed office younger than 64 or older than 66 in (1), and if the CEO departed younger than 64 in (2). Other variable definitions are in Table A1. T-statistics are in parentheses. Standard errors are corrected for clustering at the firm level. ***, ** and * denote statistical significance at 1%, 5% and 10% levels.

Dependent Var:	**Loan Spreads (Loan Level)**			
NonRetire = 1 if CEO Eventually Left	**<64 or >66**	**<64**	**<64 or >66**	**<64**
	(1)	(2)		
Years to CEO Depart (3->1)	-4.3460	-1.7333		
	(-0.71)	(-0.42)		
Years to CEO Depart (3->1)*NonRetire	2.7861	0.1358		
	(0.45)	(0.03)		
1 Year to CEO Depart			2.9299	2.9824
			(0.34)	(0.39)
1 Year to CEO Depart*NonRetire			2.9272	3.3585
			(0.32)	(0.40)
NonRetire	-25.1947	-0.8380	-18.4814*	-1.2277
	(-1.40)	(-0.06)	(-1.84)	(-0.16)
Log(Assets)	-11.3782**	-10.9654**	-11.3803**	-10.9781**
	(-2.31)	(-2.21)	(-2.30)	(-2.20)
Leverage	69.6290***	68.8303***	70.0225***	69.2082***
	(3.46)	(3.44)	(3.49)	(3.47)
Market/Book	-3.0995	-3.1721	-3.0474	-3.1295
	(-1.40)	(-1.44)	(-1.37)	(-1.41)
ROA	-164.8234***	-163.7847***	-164.7558***	-163.5087***
	(-3.67)	(-3.66)	(-3.68)	(-3.67)

Asset Maturity	1.0841	-1.1255	2.1201	-0.2861
	(0.03)	(-0.04)	(0.07)	(-0.01)
Payout Ratio	-0.1238	-0.1252	-0.1299	-0.1345
	(-0.33)	(-0.34)	(-0.36)	(-0.37)
Firm Age	5.8993***	5.7725***	5.9121***	5.7722***
	(4.89)	(4.79)	(4.92)	(4.81)
Credit Spread	0.5105***	0.5112***	0.5137***	0.5124***
	(3.35)	(3.35)	(3.37)	(3.37)
Term Spread	0.2692***	0.2712***	0.2694***	0.2708***
	(4.73)	(4.77)	(4.73)	(4.76)
Log Loan Size	-14.5732***	-14.5766***	-14.5668***	-14.5959***
	(-6.71)	(-6.68)	(-6.70)	(-6.69)
Logmaturity	-0.0934	-0.0904	-0.0918	-0.0887
	(-0.79)	(-0.76)	(-0.77)	(-0.74)
Performance Pricing	-14.5446***	-14.5389***	-14.5447***	-14.5304***
	(-3.74)	(-3.72)	(-3.74)	(-3.72)
Tenure (Years)	-2.1148**	-2.1291**	-2.1089**	-2.1313**
	(-2.31)	(-2.32)	(-2.49)	(-2.51)
Loan Type FE, Loan Purpose FE	✓	✓	✓	✓
Firm FE, Year FE	✓	✓	✓	✓
N	8733	8733	8733	8733

Appendix B2: Loan Maturity before CEO Retirement and Financial Constraints

If lenders dislike uncertainty about the succeeding CEO, such uncertainty should be more prominent among financially more constrained firms. Therefore, if lenders restrict new loans to shorter maturity due to such uncertainty, the decline in loan maturity should be larger for financially more constrained firms. I test this prediction using the specification below.

$$Avg\ New\ Loan\ Maturity_{i,t} = \beta_0 \cdot Years\ to\ CEO\ Depart\ (3 \rightarrow 1)_{i,t} * Constrained_{i,t-1} + \beta_1 \cdot Years\ to\ CEO\ Depart\ (3 \rightarrow 1)_{i,t} + \beta_2 \cdot Years\ to\ CEO\ Depart\ (3 \rightarrow 1)_{i,t} \cdot NonRetire_{i,j} + \beta_3 \cdot NonRetire_{i,j} + \lambda_1 \cdot CEO\ Age_{i,t} + \lambda_2 \cdot CEO\ Tenure_{i,t} + \gamma \cdot Controls_{i,t-1} + FE_i + FE_t + \epsilon_{i,t}, \quad (8)$$

Table B2 presents the results, using different proxies for financial constraints. $Constrained$ equals one if the firm was not rated in the previous year in Column (1), if lagged book assets was below median in Column (2), if lagged leverage was above median in Column (3), if lagged interest rate coverage ratio was below median in Column (4), and zero otherwise.

The coefficient on $Years\ to\ CEO\ Depart\ (3 \rightarrow 1)$, β_1, is positive and significant in all columns, suggesting that average loan maturity declines as CEOs approach retirement in less constrained firms. The coefficient on $Years\ to\ CEO\ Depart\ (3 \rightarrow 1) * Constrained$, β_0, is negative and never statistically insignificant in all columns, suggesting that more constrained firms experience a smaller decline in loan maturity, although not statistically significantly different from less constrained firms. These results do not support the alternative explanation that lenders restrict maturities of new loans due to uncertainty about the succeeding CEO.

Table B2: New Loan Maturities before CEO Departure and Financial Constraints

This table estimates how average maturity of new loans change as CEOs approach departure, and how the change depends on whether the firm is ex ante financially constrained. The dependent variable is equally-weighted average maturity of new loans at the firm-year level. *Constrained* is a dummy variable equal to one if in the year prior, the firm is not rated by S&P in Column (1), the leverage is higher than median in (2), assets are lower than or equal to the median in (3), and interest coverage ratio is lower than or equal to the median in (4). *NonRetire* is a dummy variable equal to one if the CEO departed office younger than 64 or older than 66. The control variables are those in Panel A of table 3. Other variable definitions are in Table A1. T-statistics are in parentheses. Standard errors are corrected for clustering at the firm level. ***, ** and * denote statistical significance at 1%, 5% and 10% levels.

Dependent Var:	Average Loan Maturity (Firm-Year Level)				
NonRetire = 1 if:	CEO Depart <64 or >66				
Constrained = 1 if:	Not Rated	Low Z Score	High Leverage	Small Assets	Low Interest Coverage Ratio
	(1)	(2)	(3)	(4)	(5)
1 Year to CEO Depart	-0.1205	-0.3876	0.2034	0.1957	0.1251
*Constrained	(-0.59)	(-0.85)	(0.98)	(0.98)	(0.61)
1 Year to CEO Depart	-0.5526**	-0.5336**	-0.7209***	-0.6275***	-0.6987***
	(-2.57)	(-2.42)	(-2.88)	(-2.89)	(-2.63)
1 Year to CEO Depart	0.3774	0.3643	0.3824	0.3716	0.4370*
*NonRetire	(1.56)	(1.52)	(1.60)	(1.56)	(1.75)
Constrained	0.0010	0.2725	-0.2705**	0.1182	0.0587
	(0.01)	(1.53)	(-2.13)	(0.74)	(0.58)
NonRetire	0.0228	0.0302	0.0211	0.0335	0.0123
	(0.12)	(0.15)	(0.11)	(0.17)	(0.06)
Controls	✓	✓	✓	✓	✓
Firm FE, Year FE	✓	✓	✓	✓	✓
N	3072	3072	3072	3072	3072

Appendix B3: Loan Covenants before CEO Retirement

If lenders perceive higher risk due to an imminent CEO change and restrict loan maturity as a result, they might also impose more covenants on new loans. In Table B3, I test this prediction using the following specification at the individual loan level:

$$\#\ of\ Covenants_{i,l,t} = \alpha_1 \cdot Years\ to\ CEO\ Depart\ (3 \rightarrow 1)_{i,j} + \alpha_2 \cdot Years\ to\ CEO\ Depart\ (3 \rightarrow 1)_{i,j} \cdot NonRetire_{i,j} + \gamma \cdot Control_{i,l,t} + \lambda \cdot Control_{i,t} + \delta \cdot Control_{i,j} + u_{i,l,t}. \quad (10)$$

I control for loan maturity. Thus, the coefficient on $Years\ to\ CEO\ Depart\ (3 \rightarrow 1)$ captures the change in # of covenants as CEOs approach retirement, holding loan maturity constant. In column (1), I use the number of covenants as the dependent variable. In column (2), I use the natural log of number of covenants as the dependent variable. In Column (3), instead of OLS, I use ordered probit regression (the number of covenants is an integer between 0 and 6), but omitting firm fixed effects due to the incidental parameters problem with many fixed effects in ordered probit models (Greene 2004). I repeat the analysis using the alternative definition of $NonRetire$ in Columns (4)-(6). The coefficient on $Years\ to\ CEO\ Depart\ (3 \rightarrow 1)$, α_1, is not statistically significant in any of Columns (2)-(6). α_1 is positive and statistically significant in Column (1), suggesting that the number of covenants declines as CEOs approach retirement. These results suggest that lenders do not impose more covenants as CEOs approach retirement, not providing support for the alternative explanation that successor uncertainty drives the shortening of loan maturity.

Table B3: New Loan Covenants before CEO Departure

This table estimates how covenants of new loans change as CEOs approach departure. The dependent variable is the number of covenants in Columns (1), (3), (4) and (6), its natural log in the other columns. I use OLS regression in Columns (1)- (2), (4)-(5), and ordered probit in (3) and (6). *NonRetire* is a dummy variable equal to one if the CEO departed office younger than 64 or older than 66 in Columns (1)-(3), and younger than 64 in (4)-(6). Other variable definitions are in Table A1. T-statistics are in parentheses. Standard errors are corrected for clustering at the firm level. ***, ** and * denote statistical significance at 1%, 5% and 10% levels.

	OLS		Ordered Probit	OLS		Ordered Probit
Dependent Var:	**# of Covenants**	**Log (# of Covenants)**	**# of Covenants**	**# of Covenants**	**Log (# of Covenants)**	**# of Covenants**
NonRetire = 1 if	**CEO Eventually Left < 64 or > 66**					
	(1)	(2)	(3)			
Years to CEO Depart (3->1)	0.1818	0.0496	-0.0236			
	(1.45)	(1.20)	(-0.24)			
Years to CEO Depart (3->1) *NonRetire	-0.1626	-0.0474	-0.0229			
	(-1.29)	(-1.11)	(-0.22)			
1 Year to CEO Depart				-0.2827	-0.0414	0.2120
				(-0.98)	(-0.42)	(1.14)
1 Year to CEO Depart *NonRetire				0.2918	0.0408	-0.1929
				(0.97)	(0.40)	(-0.97)
NonRetire	0.4079	0.1235	0.1998	-0.0336	0.0027	0.1442**
	(1.19)	(0.99)	(0.70)	(-0.19)	(0.04)	(2.05)
Log(Assets)	-0.6215***	-0.1909***	-0.2939***	-0.6257***	-0.1913***	-0.2962***
	(-5.73)	(-5.63)	(-8.85)	(-5.77)	(-5.66)	(-8.93)
Leverage	1.4795***	0.4537***	1.2955***	1.4840***	0.4554***	1.2954***
	(3.22)	(3.25)	(6.79)	(3.22)	(3.25)	(6.75)
Market/Book	-0.1882***	-0.0531***	-0.1182***	-0.1892***	-0.0533***	-0.1187***
	(-2.77)	(-2.63)	(-3.77)	(-2.78)	(-2.63)	(-3.79)

ROA	-0.3103	-0.1628	-0.3079	-0.2958	-0.1608	-0.3308
	(-0.50)	(-0.82)	(-1.01)	(-0.47)	(-0.81)	(-1.08)
Asset Maturity	-1.1599	-0.3570	-0.1944	-1.1621	-0.3573	-0.2109
	(-1.42)	(-1.47)	(-1.46)	(-1.43)	(-1.47)	(-1.58)
Payout Ratio	-0.0215*	-0.0052	-0.0130*	-0.0221*	-0.0053	-0.0128*
	(-1.74)	(-1.45)	(-1.94)	(-1.78)	(-1.48)	(-1.89)
Firm Age	0.0143	-0.0041	-0.0052***	0.0137	-0.0046	-0.0052***
	(0.41)	(-0.27)	(-2.80)	(0.39)	(-0.30)	(-2.81)
Credit Spread	0.0038**	0.0013**	0.0014	0.0038**	0.0013**	0.0015
	(2.05)	(2.27)	(1.43)	(2.06)	(2.28)	(1.50)
Term Spread	0.0024*	0.0006	0.0020**	0.0024*	0.0006	0.0020**
	(1.75)	(1.28)	(2.12)	(1.74)	(1.28)	(2.14)
Log Loan Size	0.0401	0.0085	0.0239	0.0417	0.0089	0.0233
	(1.18)	(0.76)	(0.90)	(1.23)	(0.80)	(0.88)
Maturity	-0.0027	-0.0011*	0.0003	-0.0027	-0.0011*	0.0003
	(-1.37)	(-1.92)	(0.24)	(-1.36)	(-1.90)	(0.19)
Tenure (Years)	-0.0062	-0.0017	-0.0175**	-0.0114	-0.0029	-0.0159*
	(-0.27)	(-0.23)	(-2.04)	(-0.53)	(-0.42)	(-1.88)
Firm FE, Year FE	✓	✓	✓	✓	✓	✓
N	6866	6866	6866	6866	6866	6866

Appendix B4: New Lenders before CEO Retirement

Karolyi (2017) finds that firms are more likely to work with new lenders after CEO turnover, and argues it is because personal lending relationship between the departing CEO and lenders no longer serves the firm. Karolyi (2017) links his results to the idea that lending relationship is subject to uncertainty about the CEO and information asymmetry between the CEO and lenders. Following this logic, if firms' relationship with banks will terminate due to changes of CEO, and if lenders foresee an impending CEO change, they might terminate the relationship sooner, and firms might need to find new lenders. Table B4 tests this hypothesis using the following specification at the firm-year level:

$$\#\ of\ New\ Lender_{i,t} = \beta_1 \cdot Years\ to\ CEO\ Depart\ (3 \rightarrow 1)_{i,t} + \beta_2 \cdot Years\ to\ CEO\ Depart\ (3 \rightarrow 1)_{i,t} \cdot NonRetire_{i,j} + \beta_3 \cdot NonRetire_{i,j} + \lambda_1 \cdot CEO\ Age_{i,t} + \lambda_2 \cdot CEO\ Tenure_{i,t} + \gamma \cdot Controls_{i,t-1} + FE_i + FE_t + \epsilon_{i,t}. \quad (11)$$

In Columns (1)-(3), I define new lender as a lead lender who has not been a lead lender for the firm in the last five years before year *t*. In Column (1), the dependent variable is average number of new lenders per loan at the firm-year level. In Column (2), I replace the dependent variable with a loan-size weighted average number of new lenders. In Column (3), the dependent variable is a dummy variable that equals one if there is any new lenders involved with any new loans of the firm-year observation, and zero otherwise. In Columns (4)-(6), I define new lender as a lead lender who has never been a lead lender for the firm-CEO pair before year *t*, and repeat the analysis.

The coefficient on $Years\ to\ CEO\ Depart\ (3 \rightarrow 1)$ is not statistically significantly different from zero in any of the six columns, suggesting that firms do not increasingly

resort to new lenders when CEOs approach retirement. This result does not provide support for the hypothesis that the shortening of loan maturity is due to lenders' perceived uncertainty about the successor. In Table B4, the dummy variable $NonRetire$ equals one if CEOs leave before age 64 or after 66, zero otherwise. Results are similar using the alternative definition of $NonRetire$.

Table B4: Participation of New Lenders in New Loans before CEO Departure

This table estimates how participation of new lenders in new loans change as CEOs approach departure. The dependent variable is the equally-weighted average number of new lenders in Columns (1) and (4), loan-size-weighted in (2) and (5), and a dummy variable for having a new lender in (3) and (6). I use OLS regression in Columns (1)- (2), (4)-(5), and ordered probit in (3) and (6). In Columns (1)-(3), I define new lender as a lead lender who has not been a lead lender for the firm in the five years prior. In Columns (4)-(6), I define new lender as a lead lender who has never been a lead lender for the firm-CEO pair before year *t*. *NonRetire* is a dummy variable equal to one if the CEO departed office younger than 64 or older than 66. Other variable definitions are in Table A1. T-statistics are in parentheses. Standard errors are corrected for clustering at the firm level. ***, ** and * denote statistical significance at 1%, 5% and 10% levels.

Dependent Var:	**Avg # of New Lenders**	**Weighted Avg # of New Lenders**	**Dummy for >= 1 New Lender**	**Avg # of New Lenders**	**Weighted Avg # of New Lenders**	**Dummy for >= 1 New Lender**
New Lender Definition:	**No Loans with Firm in Past 5 Yrs**			**No Loans with Firm-CEO Pair**		
NonRetire = 1 if	**CEO Eventually Left <64 or >66**					
	(1)	(2)	(3)	(4)	(5)	(6)
1 Year to CEO Depart	-0.0894	-0.0885	-0.0272	-0.0660	-0.0626	-0.0307
	(-1.27)	(-1.20)	(-0.78)	(-0.90)	(-0.82)	(-0.89)
1 Year to CEO Depart	0.0824	0.0848	0.0318	0.0786	0.0808	0.0411
*NonRetire	(1.11)	(1.09)	(0.83)	(1.02)	(1.00)	(1.12)
NonRetire	-0.2238	-0.2338	-0.0776	-0.1522	-0.1529	-0.1293
	(-1.07)	(-1.09)	(-0.72)	(-0.68)	(-0.68)	(-1.23)
lag R&D/Sales	0.0502	0.2110	0.5405	-0.0268	0.1892	0.4025
	(0.07)	(0.28)	(0.88)	(-0.04)	(0.26)	(0.67)
lag Market/Book	-0.0019	-0.0050	0.0056	-0.0196	-0.0213	-0.0016
	(-0.06)	(-0.16)	(0.45)	(-0.50)	(-0.54)	(-0.11)
lag Log(Assets)	0.0068	-0.0022	-0.0104	0.0307	0.0238	-0.0407
	(0.12)	(-0.04)	(-0.28)	(0.43)	(0.32)	(-1.12)
lag Leverage	-0.3150	-0.3374	-0.1277	-0.3602	-0.3560	-0.1730
	(-1.28)	(-1.35)	(-0.85)	(-1.26)	(-1.21)	(-1.21)

CEO Age	-0.0003	-0.0003	0.0024	0.0023	0.0015	0.0005
	(-0.04)	(-0.04)	(0.56)	(0.25)	(0.17)	(0.11)
lag Asset Tangibility	0.0031	0.1048	0.0043	-0.0828	0.0263	0.1199
	(0.01)	(0.26)	(0.02)	(-0.18)	(0.05)	(0.55)
lag Asset Maturity	-0.0065	-0.0068	-0.0004	-0.0054	-0.0061	-0.0005
	(-1.23)	(-1.27)	(-0.11)	(-0.93)	(-1.01)	(-0.14)
lag Abnormal Earnings	0.0028	0.0032	0.0023	0.0053*	0.0060**	0.0038***
	(0.64)	(0.80)	(0.77)	(1.77)	(2.25)	(3.04)
lag High Zscore	-0.0582	-0.0514	0.0023	-0.0749	-0.0750	-0.0171
	(-0.54)	(-0.46)	(0.04)	(-0.57)	(-0.54)	(-0.28)
lag Speculative	-0.0128	-0.0111	0.0218	-0.0233	-0.0110	-0.0483
	(-0.18)	(-0.15)	(0.43)	(-0.27)	(-0.13)	(-1.04)
Tenure (Years)	0.0039	0.0028	0.0039	-0.0901***	-0.0929***	-0.0360***
	(0.27)	(0.19)	(0.57)	(-5.22)	(-5.37)	(-4.77)
Firm FE, Year FE	✓	✓	✓	✓	✓	✓
N	3356	3356	3356	3356	3356	3356