Debt Maturity and the Threat of Human Capital Departure —Evidence from Retiring CEOs

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Abstract

To shed light on how the threat of human capital departure affects firms' financing, I examine how firms' financing terms change as CEOs approach retirement. I find near CEO retirements, loan maturities shorten, which holds using firms' mandatory retirement policies as well as an instrumental variable approach. Based on the average of the estimates, loan maturities decline by 41% of the standard deviation in the year before CEO retirement. Within firm-year observations, maturities decline by more if lenders are more averse to new CEOs or are more familiar with the retiring CEO. If the CFO is also departing, loan maturities decline by more. If an internal successor is identified or the retired CEO stays in other roles, loan maturities do not decrease. The results suggest that loan maturities shorten because lenders change the menu of loan contracts in response to the threat of CEO departure and the uncertainty about the management.

Key Words: Human capital, debt maturity, CEO retirement

JEL Codes: G34, G32

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1 Introduction

A firm's assets include human capital, which consists of employees who cannot commit to staying with the firm. The value of a firm can be lower if some employees leave the firm, for example, a computer programmer leaves a small startup, or unionized workers all go on strike. If firms' assets are worth more with the existing human capital, the mere threat of the departure of firms' human capital can affect firms' financing, as shown in the theory by Hart and Moore (1994). Despite the importance of this topic, there has been little empirical evidence on whether the potential separation of firms' human capital and physical assets can affect firms' financing.

While the only programmer at a venture firm can be crucial to the firm, data on such employees are scarce. However, researchers have data on CEOs who can be a key aspect of firms' human capital. Most CEOs serve for a relatively short time, with a median total tenure at S&P 1500 firms of just six years. The expectation of CEOs' short total tenure, or in other words, the expectation of their ultimate departure, could potentially affect firms' financing contracts. Since every CEO ultimately leaves office, how can an empirical study find variation in the threat of CEO departing? I rely on CEO retirement, which is a common practice and can be more easily foreseen than other departures. To shed light on how the risk of human capital departure affects firms' financing, I examine how firms' financing terms change as CEOs approach both actual and predicted retirement.

I test the hypothesis that as CEOs approach retirement, maturities of firms' new loans become shorter.[1] Without frictions, shareholders and lenders can be indifferent between short- and long-maturity loans. However, loan maturities can become shorter near CEO retirement for at least two reasons. First, one can see the executive human capital as the assets in the model of Myers (1977). As the CEO is approaching retirement, there is value in waiting for the uncertainty surrounding the new CEO to resolve before lenders extend

[1] I focus on loans because the average corporate bond maturities are longer than the average CEO tenure. Thus, bonds should be less affected by CEOs' departure than loans.

credit to the new management to reduce investment distortions. Thus, lenders change the menu of loan contracts offered to the firm and increase the yields on long-maturity loans to reflect the potential deadweight loss. In equilibrium, the shorter-maturity loans are chosen to reduce the deadweight loss.

An alternative reason for shorter maturities near CEOs' retirement is that CEOs' personal incentives drive the reduction in maturities, while lenders do not change the menu of loan contracts available to firms. Compared to shorter loans that mature right after her retirement, longer loans incur higher yields and do not benefit the retiring CEO more in reducing rollover or liquidity risk.

I show that loan maturities do decline as CEOs approach retirements. The results suggest that the retiring CEOs' personal incentives or preferences cannot be the only driving force. Firms take out shorter loans near CEO retirement (at least in part) because lenders react to uncertainty surrounding the imminent change to some of firms' key human capital, and change the menu of loan contracts available to firms.

One difficulty to test how firms' financing changes as CEOs are expected to depart is that researchers do not accurately observe which CEOs are expected by lenders to leave. To isolate the effect of CEOs' expected departures, I focus on CEO departures that are more likely due to natural retirement, and less likely due to abrupt firing following poor performance. Figure 1 shows that the probability of a CEO departing is much higher for CEOs above age 64 (with the probability being mostly above 55%) compared to younger CEOs (27% at the median age 56). Presumably, the older CEOs are more likely to leave due to their desire to retire, not because they are more likely fired. Lenders can better predict such departures due to natural retirement than other departures. Thus, I classify a departure as likely due to expected retirement if the CEO leaves at the age of 64-66 (following, e.g. Warner, Watts and Wruck 1988, Weisbach 1988, Sundaram and Yermack 2007 and Jenter and Lewellen 2015).[2] For brevity, I often refer to departures that are likely due to retirements

[2]Cline and Yore (2016) find that 19% of *ExecuComp* firms have mandatory CEO retirement policies, which are set almost uniformly at age 65.

simply as retirements, and others as non-retirement departures.

I examine how maturities of firms' new loans change as CEOs approach retirements in a sample of 2,955 CEOs from 2,235 large publicly-traded U.S. firms from 1992 to 2016. One concern is that some omitted variables could drive CEO departures at age 64-66 and also shorten the maturities of new loans. To address such concerns, I instrument for CEOs' impending departures using departure probabilities based on their age. The variation in departure probabilities should reflect retirement norms over CEOs' age. As an additional way to address endogeneity, I also examine CEO departures per firms' CEO mandatory retirement policies.

The main result is that maturities of new loans decline as CEOs approach likely retirements, both at the firm-year level and individual loan level. This result also holds with the instrumental variable approach or by classifying CEO departures as retirements if the departures follow firms' mandatory retirement policies. At the median of OLS estimates, loan maturities decline by half a year in the year before CEO retirement, which is a significant 30% of the standard deviation of 1.7 years. Additional results described below support the explanation that lenders change the menu of loan contracts offered to firms near CEO retirement in response to the increased uncertainty about management.

First, within firm-years, loan maturities decline by more if lenders are more averse to new CEOs, based on loan-level regressions with firm-year fixed effects. Some lenders may be more averse to uncertainty about management because such issues are explicitly discussed in their underwriting guidelines, or because the lenders are more risk-averse in general due to their financial conditions. To measure lenders' aversion to new CEOs, I use loans each lender makes to CEOs who are not new, as a percentage of all of the lenders' loans. Lenders that lend more to CEOs who are not new are presumably more averse to new CEOs. Estimates imply that a one-standard-deviation increase in lenders' aversion to new CEOs is associated with a 2.0-year larger decline of loan maturities, which is 115% of the standard deviation. This result implies that the shorter loan maturities near CEO retirements is (at least in part)

due to lenders' reaction to the impending CEO departure and charging higher spreads on long-maturity loans or rationing them.

In addition to maturities declining by less, spreads increase by more if lenders are less averse to new CEOs even after controlling for loan maturities. A one-standard-deviation decrease in lenders' aversion to new CEOs is associated with a 76-basis-point larger increase in loan spreads, which is 61% of the standard deviation. This result implies that firms pay extra spreads for securing longer-maturity loans beyond the usual spreads commanded by longer maturities. If maturities did not shorten for loans from lenders who are more averse to new CEOs, spreads would probably increase by more than 76 basis points beyond that commanded by longer maturities. The shorter loan maturities are unlikely driven by CEOs choosing loans with shorter maturities near retirement while the menu of loan contracts offered by lenders stays the same.

Second, within firm-years, maturities decline by more if lenders have a more intense relationship with the retiring CEO, based on loan-level regressions with firm-year fixed effects. I argue that loan maturities near CEO retirement are shorter because lenders' reaction to the impending CEO retirement. When the CEO they are familiar with is to retire soon, they shorten loan maturities so that they limit their exposure to the new CEO before the uncertainty resolves. Maturities will shorten by more, if lenders have had a relationship with the retiring CEO. Such lenders are more familiar with the retiring CEO, and the incoming CEO imposes a larger increase in management-related uncertainty for these lenders. Estimates imply that a one-standard-deviation increase in lenders' relationship with the retiring CEO is associated with a 1.6-year larger decline of loan maturities near CEO retirement, 94% of the standard deviation.

If the lender has had a less intense relationship with the retiring CEO, in addition to maturities declining by less, spreads increase by more even after controlling for loan maturities. Near CEO retirement, one standard deviation decrease in lenders' relationship intensity with the retiring CEO is associated with a 114-basis-point larger increase in loan spreads, which

is 90% of the standard deviation of loan spreads. This result implies that firms incur extra costs to secure longer-maturity loans beyond paying the usual spreads for longer maturities. These results on loan maturities and spreads again suggest that lenders change the menu of loan contracts near CEO retirement in reaction to the impending change to firms' key human capital.

Third, near CEO retirement, if the CFO is also departing, loan maturities decline by more. Since the CFO can also play an important role in firms' financial performance, if the CFO and the CEO are both departing, lenders may perceive heightened uncertainty about firms' prospects, which leads to loan maturities shortening by more.

Fourth, when there is an heir apparent successor or the retired CEO stays with the firm in another role, both of which can lessen uncertainty about the transition, maturities of new loans do not decrease. The successor can be already involved in firms' decision making before becoming the CEO. When the retired CEO stays in the firm, it can mean more continuation of the direction the firm is taking. Because of the smaller increase in uncertainty, lenders do not increase the spreads on longer-term loans as much when there is an heir apparent successor or if the retiring CEO stays with the firm in another role.

Fifth, soon after a CEO's likely-retirement departure, 43% more loans initiated during her tenure come due, compared to after other CEO departures. This result can be due to that lenders are better able to expect the CEO retirements compared to other CEO departures. With shorter loan maturities, lenders are better positioned to negotiate with the new CEOs following more predictable turnovers.

Presumably, banks can also cut the loan amount, require higher promised yields, impose more covenants or terminate the lending relationship, when they are concerned about the uncertainty of the succeeding CEO. I do not observe such changes. As CEOs approach retirement, I find no statistically significant changes in other aspects of lending at the firm-year level: the number of new lenders, loan spreads, number of covenants, loan size, the total

number of loans, total loan amount, and the amount of term loans as a portion of all loans.[3] These results imply that lenders limit their exposure to new CEOs using a specific method, namely by shortening loan maturities, which highlights the special role of loan maturities as a tool for lenders to manage their strategy around events with predictable timing.

One endogeneity concern is that 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 offer 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 maturities, 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) for CEOs at the age of n, I construct an instrument using other CEOs' probability of departure at age n or $n+1$. Results using the instrumental variable approach are consistent with the OLS results: maturities of new loans become shorter as CEOs approach departures predicted by the instrument.

There could be alternative explanations for the decline in loan maturities before CEO retirements. One explanation is that retiring CEOs' personal preferences, instead of lenders' incentives, drive the shortening of loan maturity. By using shorter maturities, firms save on interest payments and have better accounting performance, which can increase CEOs' pay.

[3]Loan spreads do decline statistically significantly as a result of shorter loan maturities near CEO retirements using a system of simultaneous equation.

Second, CEOs near retirement want to leave flexibility to their successors when structuring loan contracts. When the retiring CEO initiates shorter-maturity loans, the succeeding CEO can structure new loan contracts as she prefers sooner after taking office. Third, the decline in loan maturity may be due to CEOs' aging, since the retiring CEOs are generally older. The fourth explanation is that the retiring CEOs are more likely to sell the firm (Jenter and Lewellen 2015) and lenders dislike such risks (Chava, Livdan and Purnanandam 2009). As a result, the lenders may restrict the loan maturities to shorter ones. The fifth explanation could be that as the CEO approaches retirement, the present value of her pension grows (Sundaram and Yermack 2007), which can drive the decline in loan maturities. These alternative explanations cannot explain all of the heterogeneous change in loan maturities across lenders and firms. Nonetheless, I present evidence related to each of these alternative explanations above. The evidence does not support the alternative explanations.

This paper offers five main contributions. First, this paper sheds light on the important question of whether the inalienability of human capital affects the financing of firms. Since being proposed as important friction in contracting by Hart and Moore (1994), to the best of my knowledge, this idea has not been examined empirically. In the review article by Myers (2003), recognizing that managers as firms' human capital and studying firms' financing in this context is important and underexplored. I show that loan maturities become shorter when CEOs are near retirement, i.e., when the threat of the withdrawal of the current executive human capital is high. This result implies that the potential departure of firms' human capital can affect the financing of firms.

Second, this paper implies that higher uncertainty about management perceived by lenders can shift financing to the short term. If firms tend to match asset maturity with liability maturity, then they may also shift investment to shorter-term projects. Firms' potential focus on the short term has been attributed to CEOs' personal preferences, career concerns, incentive packages, employment contract length and pressure from the stock market.[4] This

[4]Dechow and Sloan (1991) find that firms spend less on R&D before CEO departure, especially before retirement. Jenter and Lewellen (2015) find that when CEOs are close to age 65, firms are more likely to

paper suggests that CEO's expected impending departure that heightens the uncertainty about firms' management can effectively shorten firms' financing and investment horizons, which is not necessarily irrational or inefficient. Although I detect such a phenomenon by focusing on the maturities of firms' new loans as CEOs approach retirement, such a shift in focus to the short term could occur in other scenarios. It could occur with other types of expected increases in CEO departure likelihood, for example, at the end of a CEOs' employment contracts.[5] Such a phenomenon could also be related to other stakeholders besides lenders, for example, employees working on long-term projects and boards of directors approving long-term plans. They might hinder a departing CEO' ability to design and execute those long-term plans, since the new CEO may not continue those plans. (Indeed, I find that firms decrease acquisition activities near CEO retirement, which could be partially driven by such imposed short-term focus.) Even if it is optimal for departing CEOs not to invest for the long run, ex ante, such lame-duck periods or short CEO tenures can be costly.

Third, this paper highlights a new consideration to be taken into account in the debate on how CEO mandatory retirement policies and CEOs' age can affect firms. Cline and Yore (2016) argue that CEO mandatory retirement policies are effective governance tools so that CEOs' aging does not negatively impact firms' performance. This paper suggests that when stakeholders expect a CEO to leave, long-term financing and maybe also investment might reduce. Such a shift of financing and investment toward the short term, optimal or not ex post, needs to be taken into account in the total ex-ante effect of CEO mandatory retirement policies. In addition, some papers analyze how CEOs' age affects firms' performance.[6] This paper suggests, because older CEOs have a higher likelihood of departure, other stakeholders

receive a successful takeover bid. They argue that as CEOs are closer to retirement, their private costs of the firm being acquired decline, which drives up the probability of being taken over. Edmans, Fang and Lewellen (2017) find that the growth of research and development and capital expenditure decline with vesting equity. González-Uribe and Groen-Xu (2017) find that firms produce less important R&D when CEOs' remaining contract term is shorter.

[5]Cziraki and Groen-Xu (2018) document that the probability of CEO departure increases as CEOs' contract is closer to end.

[6]For example, Holmström (1999), Yim (2013), Sering (2014), Li, Low and Makhija (2014), Jenter and Lewellen (2015), and Cline and Yore (2016).

might cause firms to change actions, which should be taken into account when evaluating the effect of older CEOs.

Fourth, this paper adds to the evidence on CEOs' importance for firms' financing. One strand of literature examines how top managers' characteristics, tenure or compensation features affect firms' debt contracts without focusing on debt maturity.[7] Several papers also study how managers' incentives can affect debt maturities.[8] This paper is particularly related to Pan, Wang and Weisbach (2017) who show that firms incur higher borrowing spreads under new CEOs, as well as Karolyi (2017) who shows that firms resort to new lenders under new CEOs. My results are consistent, suggesting lenders dislike the uncertainty surrounding changes in top management. Importantly, compared to Pan, Wang and Weisbach (2017) and Karolyi (2017), this paper has distinct, new contributions as discussed in the previous two paragraphs.

Finally, this paper also implies that the transition in top management succession can be important. I find that near CEO retirement if the CFO is also leaving, loan maturities decline by more. If the successor is an heir apparent or if the retired CEO stays in another role, loan maturities do not decline. These results suggest that when the management succession is structured in a way that heightens the uncertainty about the new management, firms are less likely to obtain longer-term financing. Presumably, with more certainty about the succession transitions, firms can better carry out long-term plans and eliminate any inefficiency arising from CEOs' lame-duck periods.

2 Identification

This paper studies how an expected CEO departure can affect firm behavior, in particular, loan maturities. Because CEOs can depart as a result of firing, reasons behind firing can

[7] The papers include Bertrand and Schoar (2003), Lewellen (2006), Tchistyi, Yermack and Yun (2011), Anantharaman, Fang, and Gong (2013), Chen et al. (2016), and Lee et al. (2018).

[8] 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) study how CEOs' inside debt relates to firms' debt maturity.

affect both firms' actions (e.g. new loan maturity) and CEO departures. Thus, I focus on CEO departures that are due to retirement that is likely expected and unlikely due to poor performance. However, researchers cannot precisely tell which CEO departures are retirements. Thus, I identify some CEO departures as likely-retirement departures based on CEOs' age at departure. Among the likely-retirement departures, some can be due to firing. For identification, I study how loan maturities change before CEOs' departures, and compare the changes between likely-retirement departures and other departures.

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 lenders expect that treated CEOs will leave office soon. However, between my retirement (treatment) and non-retirement (control) sample, there are more differences than this desired one. First, CEOs likely retired may have better performance than CEOs less likely retired, 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 maturities 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.

There are additional differences between the two groups of CEOs. One example is that the retirement CEOs on average are older than the non-retirement CEOs. Thus, I always control for CEOs' age. Besides, in robustness checks, I exclude all CEOs younger than 60. A second 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. Lee et al. (2018) find that inside debt is associated with lower loan spreads. In Section 4.7., I address alternative explanations due to the aforementioned and other undesired differences between the retirement and non-retirement CEOs.

I identify whether a CEO departure is likely due to retirement, using CEO age at depar-

ture. 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 CEOs are more likely to retire (rather than more likely fired), compared to CEOs of younger age. Following the literature, I classify a departure as retirement if the CEO leaves at the age between 64 and 66, and non-retirements otherwise. In robustness checks, I also identify a departure as retirement if the CEO departs at age 64 or older, or if the CEO departs in accordance with the firm's mandatory retirement policy.

To further address endogeneity concerns, I instrument for the dummy variable *1 Year to CEO Depart* (the fiscal year before CEOs' actual departure), using departure probability based on CEO age. To the extent that the age-based departure probability reflects the tendency and expectation to retire and does not affect firms' loan maturities through any other channel, the second stage obtains the change in loan maturities due to the CEO's impending departure predicted by CEO retirement norms.

3 Data

3.1 Data on CEOs

Data on CEOs are from *ExecuComp*. I include CEOs who took office since 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 Table 1 shows, CEOs in the retirement sample on average stay in office one to two years longer than other CEOs.

As mentioned earlier, I use CEO departure probability based on CEO age to instrument for the dummy variable *1 Year to CEO Depart*. For a CEO at the age 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, calculated excluding the focal CEO. Panel B in Table 1 provides summary statistics of the instrument. Panel C provides summary statistics on other control variables about CEOs.

3.2 Data on Loans

Data on loans are obtained from *Dealscan*. I use the borrower linking table from 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).[9] 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 the median is 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 the median is four years. The number of new loans at the firm-fiscal year level has a mean of 2.5, and a median of 1.0. The total size of new loans at the firm-year level has a mean of \$1,432M, and a median of \$500M.

3.3 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 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

[9] I am grateful to Mike Schwert for his generosity for making the data available.

panel shows the difference between last year and the earlier years of CEO tenure in the retirement subsample, and the second row shows 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 CEOs' non-retirement departures than before CEOs' retirements.

4 New Loans before CEO Retirement

4.1 New Loan Maturities before CEO Retirement

4.1.1 Firm-Year Average Loan Maturities

OLS Regression As a CEO approach retirement, lenders might shorten the maturities of new loans if they dislike the uncertainty about the new CEO. This subsection tests this main hypothesis.

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.

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

where i indexes the firm, t the fiscal year and j the CEO at firm i during fiscal year t.

Avg New Loan Maturity$_{i,t}$ is the average maturity of new loans taken out by firm i in fiscal year t, weighting loans equally. 1 *Year to CEO Depart* equals one in the fiscal year before CEO departure, and zero otherwise. Again, any firm-fiscal year with a CEO turnover is excluded. *NonRetire* 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 fiscal-year fixed effects.

Columns (1) in Table 3 Panel A shows the results. The coefficient on 1 *Year to CEO Depart*, β_1, is -0.57 and statistically significant. The estimate suggests, as CEOs approach retirements, the average maturity of new loans declines by 0.57 years or 6.48 months, 33.33% of the standard deviation (1.68 years). In Column (2), I control for firm fixed effects and industry-year fixed effects. In Column (3), I control for firm-CEO pair fixed effects and year fixed effects. The results are similar to Column (1): loan maturities decline as CEOs approach retirement.

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 1 *Year to CEO Depart*$\cdot$*NonRetire*, should be negative. However, β_2 is positive in Columns (1) through (3) and statistically significant in Columns (1)-(2), suggesting that new loan maturities decline by less 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.

Column (4) only uses the sample of CEOs who eventually left between age 64 and 66, and estimates the following specification

$$\begin{aligned} \textit{Avg New Loan Maturity}_{i,t} = &\beta_1 \cdot 1\ \textit{Year to CEO Depart}_{i,t} + \lambda_1 \cdot \textit{CEO Tenure}_{i,t} + \\ &\lambda_2 \cdot \textit{CEO Age}_{i,t} + \gamma \cdot \textit{Other Controls}_{i,t-1} + FE_i + FE_t + \varepsilon_{i,t}. \end{aligned} \tag{2}$$

In Column (5), I repeat Column (4) but control for firm-CEO pair fixed effects and year fixed effects. The estimated coefficients on 1 *Year to CEO Depart* are both negative and statistically significant in Columns (4) and (5). Estimates suggest that average new loan

maturity in the year before CEOs' likely retirement is statistically significantly shorter than loans initiated earlier, by 0.45 year in Column (4) or 0.43 year in Column (5).

Panel B of Table 3 presents robustness checks. Column (1) estimates Equation(1) without controls. Column (2) adds additional controls to those in Panel A: CEO delta, vega and top managers' ownership, which Brockman, Martin and Unlu (2010) and Datta, Datta and Raman (2005) suggest can affect debt maturities. (3) only includes CEOs with total tenure of four years or longer. (4) only includes CEOs of age 60 or older. Results in Columns (1) through (4) are similar to those in Panel A.

In Column (5), I replace 1 *Year to CEO Depart* with *Years to CEO Depart* $(3 \rightarrow 1)$, which equals three if the CEO for firm i in fiscal 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. The coefficient on *Years to CEO Depart* $(3 \rightarrow 1)$ indicates that as CEOs approach retirements (*Years to CEO Depart* $(3 \rightarrow 1)$ declines from three to one), the average maturity of new loans declines by 0.54 years (0.27×2) or 6.4 months.

In Column (6), dummy *NonRetire* equals one if the CEO eventually left at age 64 or older. The coefficient on 1 *Year to CEO Depart* is negative and statistically significant. Column (7) re-estimate Equation (1) by replacing the dependent variable with new loan maturities averaged by weighting loans by the face amount. The result is consistent with Panel A.

Note that in Panel B, all the seven coefficients on 1 *Year to CEO Depart*·*NonRetire* are positive, and four of them are statistically significant, suggesting that, relative to before CEO retirement, new loan maturity declines by less before CEOs' non-retirement departures. Since these CEO departures are more likely due to abrupt firings, poor performance unlikely drives shorter loan maturity before CEO retirements.

Instrumental Variable Regression One endogeneity concern is that firms' poor performance causes CEOs to be fired and thus, causes lenders to restrict loan maturities. To address this concern, I re-estimate Equation (1), by instrumenting the dummy variable, 1 *Year to CEO Depart*, with the probability of CEO departure based on CEO age, *CEO Depart Probability*. The instrumental variable, *CEO Depart Probability*, plausibly reflects CEO retirement norms, but should not be otherwise related to firms' loan maturity. However, the exclusion assumption could be violated, which I discuss in Section 4.7.

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 32.48, much higher than the corresponding Stock and Yogo (2005) thresholds. 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 maturities of new loans. Column (2) suggests that in the last year before CEOs' age-related departure, the average maturity of new loans is 1.3 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 controlling for firm fixed effects and industry-year fixed effects. The magnitude of the coefficient on 1 *Year to CEO Depart* is similar, but the statistical significance is lower.

CEO Mandatory Retirement Panel D repeats Panel C using information on firms' CEO mandatory policies. In Columns (1)-(3), dummy *NonMandatoryRetire* 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), and zero otherwise.[10] The coefficients on 1 *Year to CEO Depart* are negative and statistically significant in Columns (1) through (3). The coefficients on the interaction terms between 1 *Year to CEO Depart*

[10]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.

and dummy *NonMandatoryRetire* are positive and statistically significantly from zero, suggesting that the change in loan maturities before CEO departures are different between departures due to mandatory retirement and the others. In Columns (4) and (5), I only include CEOs who departed in accordance with firms' mandatory CEO retirement policies. The coefficients on 1 *Year to CEO Depart* are again negative and statistically significant. The coefficients on 1 *Year to CEO Depart* range between 0.68 and 0.72, suggesting that before CEOs' mandatory retirements, loan maturities decline by around 0.7 years, which is 41.67% of the standard deviation. The departures of CEOs due to mandatory retirement policies should be the most predictable, which can explain why the coefficients on 1 *Year to CEO Depart* in this panel have larger absolute values than all those in Panels A and B.

4.1.2 Maturities of Individual Loans

Table 3 described in the previous subsection implies that firm-year-level average loan maturities decline as CEOs approach retirement. The shorter loan maturities could be a result of changes in other dimensions of the loan contracts. For example, maybe CEOs do not want performance pricing terms attached to the loans. Lenders shorten the loan maturities in exchange for no performance pricing clause. In this subsection, I estimate whether loan maturities at the individual loan level decline when controlling for loan characteristics. Since for loans taken out in a given firm-year have the same values for variables at the firm-year level, standard errors are corrected for clustering at the firm-year level for all the regressions using individual-loan-level observations.

OLS Regression In Panel A of Table 4, I test whether maturities of individual new loans decrease as CEOs are about to retire by estimating Equation (1) at the individual loan level and controlling for loan characteristics. Column (1) includes firm and year fixed effects, (2) firm and industry-year fixed effects, (3) firm-CEO and year fixed effects, and (4) firm-CEO and industry-year fixed effects. The coefficients on 1 *Year to CEO Depart* are

all negative and statistically significant. Columns (5)-(8) repeat (1)-(4) by only including CEOs who eventually departed at age 64-66. Again, the coefficients on 1 *Year to CEO Depart* are all negative and statistically significant, suggesting that loan maturities decline as CEOs approach retirement after controlling for loan characteristics. The magnitudes of these coefficients are also similar to those in Panels A and B in Table 3.

Instrumental Variable Regression Panel B of Table 4 repeats the instrumental variable regressions in Panel C of Table 3, but at the individual loan level. Again, the coefficients on the instrumental variable, *CEO Depart Probability*, are positive and statistically significant. The coefficients on 1 *Year to CEO Depart* are both negative, -1.49 in Columns (2) and -2.51 in (4), and statistically significant when controlling for firm and industry-year fixed effects in (4). The results again suggest the shorter loan maturities are a result of CEO departures related to CEO age-based retirement norms related.

CEO Mandatory Retirement Panel C repeats Panel A using information on firms' CEO mandatory policies. In Columns (1)-(4), dummy *NonMandatoryRetire* equals one if the firm has a CEO mandatory retirement policy, and the CEO retired within one year of the specified age, and zero otherwise. In Columns (4) and (5), I only include CEOs who departed in accordance with firms' mandatory CEO retirement policies. The coefficients on 1 *Year to CEO Depart* are all negative and statistically significant. The coefficients on 1 *Year to CEO Depart* range between 0.52 and 1.37, suggesting that before CEOs' mandatory retirements, loan maturities decline by between 0.5 and 1.37 years, which is between 30% and 82% of the standard deviation. The departures of CEOs due to mandatory retirement policies should be the most predictable, which can explain why the coefficients on 1 *Year to CEO Depart* in this panel have larger absolute values than all those in Panel A.

System of Simultaneous Equations: Loan Maturities and Loan Spreads Many of a loan's characteristics can be jointly determined with loan maturities, the most obvious and

important one plausibly being loan spreads. To take into account the joint determination of loan maturities and spreads, I use the system of simultaneous equations, with loans taken out under CEOs who eventually departed at age 64-66 or at 64 or older:

$$\begin{aligned} \textit{Loan Maturity}_{i,l,t} =& \beta_1 \cdot 1\ \textit{Year to CEO Depart}_{i,t} + \beta_2 \cdot \textit{Loan Spread}_{i,l,t} + \\ & \gamma_a \cdot \textit{Control}_{i,l,t} + \gamma_a \cdot \textit{Control}_{i,t-1} + \varepsilon_{i,l,t} \end{aligned} \tag{3a}$$

$$\begin{aligned} \textit{Loan Spread}_{i,l,t} =& \alpha_1 \cdot \textit{Credit Spread}_{m-1} + \alpha_2 \cdot \textit{Loan Maturity}_{i,l,t} + \\ & \gamma_a \cdot \textit{Control}_{i,l,t} + \gamma_a \cdot \textit{Control}_{i,t-1} + u_{i,l,t} \end{aligned} \tag{3b}$$

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

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

Panel B of Table 4 shows the results, using loans taken out under CEOs who eventually departed at age 64-66. In Column (1) estimating Equation (3a), the coefficient on 1 *Year to CEO Depart* is negative and statistically significant, suggesting that the maturity of new loans decreases as CEOs approach retirement. In Column (2) estimating Equation (3b), 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) suggests, in the year before CEO departure, maturities of individual loans shorten by 0.47 years, similar to the magnitudes in OLS regressions in Tables 3 and 4.[11]

[11] Column (4) suggests that loan spreads are lower as a result, by 10.20 basis points (0.47*21.73). This is 11.7% of the median (87.5), and 9.0% standard deviation (114.23) of the subsample used in this regression.

4.2 Loan Maturities and Spreads before CEO Retirement and Lenders' Aversion to New CEOs

Different lenders could have different levels of aversion to the risk of new CEOs. Some lenders may have a stronger aversion to such risks because such risks are explicit in their underwriting guidelines, or because they are in general more risk-averse due to their capitalization or other characteristics. I hypothesize that lenders who are more averse to new CEOs shorten loan maturities by more.

To test this hypothesis, for each lead lender in a loan, I use the number of loans the lender makes to CEOs who are not new (beyond the first two years of their tenure) as a percentage of all of their loans as a proxy for a lender's aversion to new CEOs. I then take the average across the lead lenders for each loan, to obtain a loan-level measure of *Lenders' Aversion to New CEOs*. I assume lenders that lend less to new CEOs are more averse to new CEOs. Regressions at the individual loan level with firm-year fixed effects suggest that, within a firm-year, loans from lenders who are more averse to new CEOs see loan maturities shorten by more, consistent with the hypothesis. I estimate the following specification in Column (1) of Table 5, using CEOs who eventually left between age 64 and 66.

$$\begin{aligned} \textit{Loan Maturity}_{l,i,t} = & \beta_1 \cdot 1\,\textit{Year to CEO Depart}_{i,t} \cdot \textit{Lenders' Aversion to New CEOs}_{l,i,t} + \\ & \beta_2 \cdot \textit{Lenders' Aversion to New CEOs}_{l,i,t} + \\ & \gamma \cdot \textit{Controls}_{l,i,t-1} + FE_{i,t} + \varepsilon_{i,t}, \end{aligned} \tag{4}$$

where l indexes individual loans and $FE_{i,t}$ are a vector of firm-year fixed effects. The coefficient on the interaction term is negative and statistically significant, suggesting that, within firm-year observations, loans from lenders who are more averse to new CEOs see their maturities decline by more. In Column (2), I calculate *Lenders' Aversion to New CEOs* by using the total dollar amount of loans lender makes to CEOs who are not new as a percentage of the total amount of all their loans as a proxy for a lender's aversion to new CEOs. The result is similar to Column (1).

Based on Column (1), a one-standard-deviation increase in *Lenders' Aversion to New CEOs* (3.77) is associated with a 1.96-year larger decline of loan maturities. The results in Table 5 are consistent with the argument that lenders shorten loan maturities as CEOs approach retirement because lenders want to limit exposure to the new CEO.

In Columns (3) and (4), I examine how lenders change spreads differently in the year before CEO retirement, by estimating the following equation, using CEOs who eventually left between age 64 and 66. Again, I control for firm-year fixed effects, and essentially compare different loans from different lenders to the same firm in the same year. I also control for loan maturity, to control for the difference in loan spreads due to different maturities.

$$\begin{aligned} \textit{Loan Spreads}_{l.i,t} = & \beta_1 \cdot 1\ \textit{Year to CEO Depart}_{i,t} \cdot \textit{Lenders' Aversion to New CEOs}_{l.i,t} + \\ & \beta_2 \cdot \textit{Lenders' Aversion to New CEOs}_{l.i,t} + \\ & \gamma \cdot \textit{Controls}_{l,i,t-1} + \textit{Loan Maturity}_{l.i,t} + FE_{i,t} + \varepsilon_{i,t}, \end{aligned} \tag{5}$$

The coefficients on the interaction terms, β_1, are negative and statistically significant in both columns. This result suggests that within firm-year observations, lenders who are less averse to new CEOs shorten loan maturities by less, but charge higher spreads on new loans near CEO retirement, compared to lenders who are more averse to new CEOs and who also shorten loan maturities by more. Based on Column (3), near CEO retirement, one standard deviation decrease in lender's aversion to new CEOs is associated with a 76-basis-point increase in loan spreads, which is 61% of the standard deviation of loan spreads (125.67 basis points). This result implies that firms incur extra costs for securing longer-maturity loans. Presumably, if two lenders offer loans of the same maturity, firms will borrow from the cheaper one. Thus, we can infer that, if lenders who have a more intense relationship with the retiring CEO did not shorten loan maturities, they would charge even higher extra spreads to compensate for the increase in management uncertainty.

4.3 Loan Maturities and Spreads before CEO Retirement and Lenders' Relationship with the Retiring CEO

I argue that the shorter loan maturities near CEO retirement are because lenders care about who the CEO is. When the CEO they are familiar with is to retire soon, they shorten the loan maturities so that they do not extend lending to the incoming new CEO. If this is the case, lenders who have had a relationship with the retiring CEO should shorten loan maturities more, compared to lenders who have a less intense relationship with the CEO. For lenders who have had a relationship with the retiring CEO, the incoming CEO imposes a larger increase in uncertainty about the management. Relatively, for lenders who had little relationship with the retiring CEO, the increase in management uncertainty is smaller, since they are less familiar with the retiring CEO.

To test the hypothesis that lenders shorten loan maturities by more if they have a more intense relationship with the retiring CEO, I calculate loan-level *Relationship between Lender and CEO*. First, for each lead lender in a loan, I calculate the number of loans between a lender-CEO pair in the previous five years (or CEOs' tenure in office if shorter than five years), as a percentage of all the loans taken out by the CEO in the same period. Then I take the average across the lead lenders in a loan to obtain loan-level *Relationship between Lender and CEO*. I estimate the specification below in Column (1) of Table 6.

$$\begin{aligned} \textit{Loan Maturity}_{l.i,t} = & \beta_1 \cdot 1\,\textit{Year to CEO Depart}_{i,t} \cdot \textit{Relationship between Lender and CEO}_{l,i,t} + \\ & \beta_2 \cdot \textit{Relationship between Lender and CEO}_{l,i,t} + \\ & \gamma \cdot \textit{Controls}_{l,i,t-1} + FE_{i,t} + \varepsilon_{i,t}, \end{aligned} \tag{6}$$

The coefficient on the interaction term is negative and statistically significant. In Column (2), I calculate the relationship measure by using total dollar amount of loans instead of number of loans. The results are similar. Based on Column (1), a one-standard-deviation increase in *Relationship between Lender and CEO* (39.78) is associated with a 1.59-year larger magnitude in the decline of loan maturities near CEO retirement.

In Columns (3) and (4), I examine how lenders change spreads differently in the year before CEO retirement, by estimating the following equation, using CEOs who eventually left between age 64 and 66. Again, I control for firm-year fixed effects, and essentially compare different loans from different lenders to the same firm in the same year. I also control for loan maturity, to control for the difference in loan spreads due to different maturities.

$$\begin{aligned} \textit{Loan Spreads}_{l.i,t} = & \beta_1 \cdot 1\ \textit{Year to CEO Depart}_{i,t} \cdot \textit{Relationship between Lender and CEO}_{l,i,t} + \\ & \beta_2 \cdot \textit{Relationship between Lender and CEO}_{l,i,t} + \\ & \gamma \cdot \textit{Controls}_{l,i,t-1} + \varphi \cdot \textit{Loan Maturity}_{l.i,t} + FE_{i,t} + \varepsilon_{i,t}, \end{aligned} \tag{7}$$

The coefficients on the interaction terms, β_1, are negative in both columns and statistically significant in Column (3). This result suggests that within firm-year observations, loan maturities shorten by less from lenders who have a less intense relationship with the retiring CEO. However, such lenders charge higher spreads on new loans even after controlling for loan maturities, compared to other lenders who have a more intense relationship with the retiring CEOs and who also shorten loan maturities by more. Near CEO retirement, one standard deviation decrease in lender's relationship intensity with the retiring CEO is associated with a 114-basis-point increase in loan spreads, which is 90% of the standard deviation of loan spreads. This result implies that firms incur extra costs for securing longer-maturity loans from lenders who are willing to extend such loans. This result also suggests that if lenders who have a more intense relationship with the retiring CEO did not shorten loan maturities, they would charge even higher extra spreads to compensate for the increase in management uncertainty.

4.4 Loan Maturities before CEO Retirement and CFO Departure

CFOs can also play an important role in interacting with lenders and ensuring firms' financial success. If the CFO is also departing as the CEO is retiring, lenders may be more concerned about the uncertainty of the new management and shorten loan maturities by more. I test

this hypothesis by estimating the equation below, using the subsample of CEOs who left between age 64 and 66.

$$\begin{aligned} Avg\ New\ Loan\ Maturity_{i,t} = & \beta_1 \cdot 1\ Year\ to\ CEO\ Depart_{i,t} \cdot 1\ Year\ to\ CFO\ Depart_{i,t} + \\ & \beta_2 \cdot 1\ Year\ to\ CEO\ Depart_{i,t} + \beta_3 \cdot 1\ Year\ to\ CFO\ Depart_{i,t} + \\ & \lambda_1 \cdot CEO\ Age_{i,t} + \lambda_2 \cdot CEO\ Tenure_{i,t} + \\ & \gamma \cdot Other\ controls_{i,t-1} + FE_i + FE_t + \varepsilon_{i,t} \end{aligned} \tag{8}$$

Table 7 presents the results. 1 *Year to CFO Depart* equals one if the CFO departed in year $t+1$, zero otherwise. For CFO turnover, I use data from *ExecuComp* for 2006 and later, as well as data from Pan, Wang and Weisbach (2017) collected from corporate news announcements in the Capital IQ database for 2001-2009.[12]

The coefficient on the interaction term, β_1, is -1.16 and statistically significantly different from zero in both columns, suggesting that near CEO retirement, if the CFO is also departing in a year, loan maturity declines by 1.16 year more than cases where the CFO is not departing. This is consistent with the idea that when both the CEO and the CFO are in their lame duck period, their common incentives can lead to a sharper decline in loan maturity.

The coefficient, β_2, is not statistically significantly different from zero, which suggests, in this subsample, when the CFO is not departing as the CEO retires, loan maturity does not experience a statistically significant decline. Since data on CFO departure is not collected for the period before 2001, I lose 15% of the observations by requiring information on CFO departure. In Column (2), I use a subsample of the CEOs who left at age 64-66, where the CFO is not departing or CFO information is missing, in order to test whether loan maturities decline before CEO retirement for this subsample. The coefficients on 1 *Year to CEO Retire* are negative and statistically significant, suggesting that the decline in loan maturity does not depend on observing the CFO is departing.

Can CFOs' impending departures alone cause lenders to shorten loan maturities? Column

[12] I am grateful to Yihui Pan, Tracy Wang and Mike Weisbach for sharing their CFO turnover data.

(3) omits the interaction term and 1 *Year to CEO Depart*. The coefficient on 1 *Year to CFO Depart* is statistically insignificant, suggesting that regardless whether the CEO is departing, when the CFO is departing in one year, loan maturity does not change statistically significantly. These results suggest that CFO departure alone does not drive the change in loan maturity and indicate that CEOs seem more important for lenders.

4.5 Loan Maturities before CEO Retirement and Succession Transition

4.5.1 Loan Maturities before CEO Retirement and Heir Apparent Successor

Succession planning can potentially mitigate the uncertainty other stakeholders face with impending CEO turnover, especially if the successor is identified well in advance and already works in the firm, i.e. an heir apparent. The heir apparent may actively engage in activities usually involving the CEO during the transition, including long-term planning and loan negotiations. Thus, lenders may perceive less uncertainty about the new CEO and the direction the firm is taking. I hypothesize that lenders do not increase the spreads by less on longer-maturity loans when there is an heir apparent successor than when there is no heir apparent successors, leading to a smaller decline in loan maturities when there is an heir apparent.

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

$$\begin{aligned} Avg\ New\ Loan\ Maturity_{i,t} = & \beta_1 \cdot 1\ Year\ to\ CEO\ Depart_{i,t} \cdot Having\ Heir_{i,j} + \\ & \beta_2 \cdot 1\ Year\ to\ CEO\ Depart_{i,t} + \beta_3 \cdot Having\ Heir_{i,j} + \\ & \lambda_1 \cdot CEO\ Age_{i,t} + \lambda_2 \cdot CEO\ Tenure_{i,t} + \\ & \gamma \cdot Other\ controls_{i,t-1} + FE_{ind} + FE_t + \varepsilon_{i,t} \end{aligned} \tag{9}$$

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's 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 8 presents the estimates. The coefficient on *1 Year to CEO Retire*, β_2, is negative and statistically significant, suggesting that firms without heir apparent successors see a decrease in new loan maturities. β_1, the coefficient on the interaction term, is positive and statistically significant, indicating that having an heir apparent successor mitigates banks' incentives to shorten the maturities of firms' new loans. The results are consistent with the idea that having an heir apparent successor lessens the perceived uncertainty about the incoming CEO. Untabulated results indicate that, as CEOs with heir apparent successors approach retirement, new loan maturities increase, but not statistically significantly.

4.5.2 Loan Maturities before CEO Retirement and CEO Staying

If the shortening of loan maturities is due to lenders' perceived uncertainty about the new CEO, and if lenders anticipate that the retired CEO will stay within the firm for a period time after stepping down, it could offset some of the uncertainty perceived by lenders. To

test this hypothesis, I estimate the following equation with CEOs who ultimately retired

$$\begin{aligned} \textit{Avg New Loan Maturity}_{i,t} = & \beta_1 \cdot 1\ \textit{Year to CEO Depart}_{i,t} \cdot \textit{CEO Staying}_{i,j} + \\ & \beta_2 \cdot 1\ \textit{Year to CEO Depart}_{i,t} + \beta_3 \cdot \textit{CEO Staying}_{i,j} + \\ & \lambda_1 \cdot \textit{CEO Age}_{i,t} + \lambda_2 \cdot \textit{CEO Tenure}_{i,t} + \\ & \gamma \cdot \textit{Other controls}_{i,t-1} + FE_{ind} + FE_t + \varepsilon_{i,t} \end{aligned} \tag{10}$$

where *CEO Staying* equals one if the departed CEO stays at the firm until at least the fiscal year following the departure, and zero otherwise. For the same reason as in Section 4.3, I use CEOs who eventually left at the age of 64 or older and replace firm fixed effects with industry fixed effects.

Column (2) in Table 8 presents the estimates of Equation (**??**). The coefficient on *1 Year to CEO Retire*, β_2, is negative and statistically significant, suggesting that firms without retired CEOs staying for a period of time see a decrease in loan maturities. β_1, the coefficient on the interaction term, is positive and statistically significant, indicating that if the retired CEO stays after stepping down, it mitigates banks' incentives to shorten the maturities of firms' new loans. The results are consistent with the idea that having some continuity in management through retaining the retired CEO can lessen the perceived uncertainty about the CEO turnover. In sum, Table (8) suggests that loan maturities decline by less if the CEO transition entails less uncertainty, which offers support for the claim that the decline in loan maturities near CEO retirement is due to lenders' desire to limit exposure to the risks associated with a new CEO.

4.6 When do Loans Mature Relative to CEO Departure?

I hypothesize that after CEOs make a plan for retirement, lenders will restrict loan maturities so that loans mature shortly after their retirement and they can exercise the real option by negotiating new loans with the new CEO according to their assessment of her ability and the fit with the firm. It can be harder for lenders to predict other types of CEO departure.

Therefore, if the CEO ultimately retires, more loans taken out during her tenure should mature sooner after her departure, compared to if the CEO leaves for other less predictable reasons. To test this prediction, I estimate the following equation:

$$\frac{Loans\ That\ Mature\ in\ Period\ t_{i,j}}{Total\ Loans\ issued_{i,j}} \times 100 =$$

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

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

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

$$\alpha_1 \cdot Retire_{i,j} + \alpha_2 \cdot Total\ Tenure + FE_i + FE_{Depart\ Year} + \varepsilon_{i,j,t}. \quad (11)$$

I divide time into periods of consecutive and non-overlapping six months, relative to each CEO's departure, indexed by t.[13] 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, and zero otherwise. I control for the effect of CEOs' total tenure on when loans mature, by including interactions between *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.

[13] 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 nth 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 mth 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 $m+n$.

Table 9 presents the results. I construct the dependent variable by equally weighting loans in both the numerator and the denominator, using the number of loans. In Column (1), *Retire* equals one if the CEO leaves at age 64-66. β_7 is 5.00 and statistically significant, indicating that, for CEOs who left for reasons unlikely to be retirement, in the first six months after departure, 5.00% more loans mature relative to the benchmark (the omitted six-month intervals). β_1 is 2.13 and statistically significant, suggesting that 42.6% (2.13 divided by 5.00) 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 39.87% (2.54 divided by β_9, 6.37) 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 lenders can shorten new loan maturities so that more loans mature quickly rather than a longer time after retirements, so that they can negotiate under the new CEO sooner after she takes office.

Since lenders will be better able to predict CEOs' departure timing when CEOs are closer to retirement, in Column (2) I consider only loans initiated in the fiscal 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 lenders are better able to use shorter loan maturities to limit exposure to new CEOs. Based on Column (2), 66.71% (β_1, 4.79, divided by β_7, 7.18) more loans initiated one year before CEO departure matures in the first six months after CEO retirement, relative to after non-retirement departure. In untabulated estimates, results are similar if I weigh loans by their size instead of equally.

4.7 Other Aspects of Loan Contracts

Presumably, when lenders are concerned about the uncertainty of the succeeding CEO, they can also cut down the loan amount, require higher promised yields, impose more covenants or terminate the lending relationship. I test whether lenders change other aspects of lending

near CEO retirement in Table A2 in the Appendix. The firm-year level dependent variable is the average number of new lenders in Column (1), average loan spreads in (2), average number of covenants in (3), average loan size scaled by firms' total debt in (4), total number of loans in (5), the total loan amount scaled by firms' debt in (6), and the amount of term loans scaled by all loans in (7). Results suggest that as CEOs approach retirement, none of these aspects of new loans change in a statistically significant way, which indicates that lenders restrict their exposure to the incoming CEO in a specific manner, namely by shortening the loan maturities.

4.8 Alternative Explanations

I document that before CEO retirement, new loans have shorter maturity. I argue that it is because the lenders are worried about the uncertainty surrounding the new CEO. This section discusses alternative explanations for the main results. It is difficult to reconcile these explanations with the observation that within firm-year, loan maturities decline by more if the lenders are more averse to new CEOs (Table 5) or have had a more intense relationship with the retiring CEO (Table 6). Nonetheless, I provide evidence that does not support them in this section.

4.8.1 Alternative Explanation 1: CEO's Personal Preferences

The first alternative explanation is that retiring CEOs prefer shorter-maturity loans, since the refinancing task and the associated risk will be born by successors. Firms might save on interest payment with shorter loan maturities, which can boost accounting performance and CEOs' pay. Based on Panel C of Table 4, the interest saving through shorter loan maturities is around 0.2% of EBIT, and lower when considering the tax shields of interests. This magnitude seems trivial to motivate CEOs to shorten loan maturities. Table 2 shows that firms' accounting performance does not improve as CEOs approach retirement. Table A3 in the Appendix shows that CEOs' pay does not increase before retirement either. Thus, it is

unlikely that CEOs personal preferences before retirement drives the shorter loan maturities.

4.8.2 Alternative Explanation 2: Leaving Flexibility to the Succeeding CEO

The second alternative explanation is that, as CEOs plan for retirements, they may want to leave flexibility to their successors. Retiring CEOs might initiate new loans with shorter maturities, 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) and Karolyi (2017) suggest that successor CEOs, especially those without a prior relationship with lenders, pay higher spreads on new loans, which is unlikely desirable for the successors. In addition, this alternative explanation does not predict that loan maturities should decline more when borrowing from lenders who are less like to lend to new CEOs, i.e. lenders more reluctant to lend to new CEOs. Therefore, the decrease in loan maturity is unlikely due to retiring CEOs' desire to leave flexibility to successors.

4.8.3 Alternative Explanation 3: Retiring CEOs are More Likely to Sell Firms

Jenter and Lewellen (2015) find evidence that firms are more likely to receive a successful takeover bid when CEOs are close to age 65. Chava, Livdan and Purnanandam (2009) find that firms with lower takeover defense (more likely to be acquired) pay higher spreads on their loans.[14] It is possible that lenders are concerned about the increased likelihood of the firm being acquired as CEOs are near retirement, and restrict loan maturity as a result. As CEOs are approaching retirement, firms with weaker takeover defense, proxied by a low G-index (Gompers, Ishii and Metrick 2003) should have a higher probability of being taken over, compared to firms with stronger takeover defense. If the increased takeover vulnerability is the cause for the shortening of loan maturity, loan maturity near CEO retirement should be shorter for firms with a lower G-index than firms with a higher G-index. I test this hypothesis in Table A4 in the Appendix. Following Gompers, Ishii and Metrick (2003), I

[14] Klock, Mansi and Maxwell (2009) find a similar effect on corporate bonds.

choose 5 and 14 as cutoffs for G-index. Results suggest the opposite: near CEO retirement, loan maturities are longer for firms with a higher probability of being taken over (lower G-index) than firms with a lower probability of being taken over (a higher G-index).

4.8.4 Alternative Explanation 4: Inside Debt

Dang and Phan (2016) find that CEOs' inside debt is positively related to firms' short-maturity debt. In the analyses so far, 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 A5 in the Appendix, I show results using data with non-missing CEO inside debt, both with and without controlling for inside debt. The effect of CEOs' imminent retirement on loan maturities is similar regardless of whether I control for inside debt or not.[15]

4.8.5 Alternative Explanation 5: CEOs' Age

Another 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 analyses so far, I always controlled for CEOs' age. Table 3 Panel B also shows robustness result including only CEOs who are older than 60. However, the relationship between CEO age and loan maturity may not be linear. Table A6 in the Appendix estimate the following specification.

$$\begin{aligned} Avg\ New\ Loan\ Maturity_{i,t} = & \beta_1 \cdot 1\ Year\ to\ CEO\ Depart_{i,t} + \\ & \beta_2 \cdot 1\ Year\ to\ CEO\ Depart_{i,t} \cdot CEO\ Left\ Before\ 64_{i,j} + \\ & \beta_3 \cdot 1\ Year\ to\ CEO\ Depart_{i,t} \cdot CEO\ Left\ After\ 66_{i,j} + \\ & \gamma \cdot Controls_{i,t-1\ or\ i,t} + FE_i + FE_t + \varepsilon_{i,t}, \end{aligned} \tag{12}$$

[15] 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.

where $CEO\ Left\ Before$ 64 equals one if CEO eventually left before turning 64, and zero otherwise. $CEO\ Left\ After$ 66 equals one if CEO eventually left after age 66, and zero otherwise. The coefficient on 1 $Year\ to\ CEO\ Depart$ is negative and statistically significant. The coefficients on the two interaction terms, β_2 and β_3, are both positive and statistically significant. The sum of β_1 and β_3 is 0.04, suggesting that for CEOs who left after age 66, loan maturities on average do not decline before their departure Thus, the decline in loan maturities before CEO departures is unlikely a result of CEOs' aging. The difference between CEO departures at age 64-66 and those beyond age 66 can be because it is harder to predict the timing of departures for CEOs who stay in the office beyond age 66. They may stay until they are physically unfit for the position, the timing of which can be hard to predict.

5 Conclusion

Every CEO ultimately leaves the office. Their lame duck periods can be of great importance to shareholders, especially since the average CEO's total tenure is a short six years. When employees, boards and investors expect the CEO to leave office in the near future, firms might reduce investments and financing for the long run. To detect such a shift towards the short term, I examine the maturities of firms' new loans, since this variable has an observable time dimension.

I find that as CEOs approach likely retirement, maturities of new loans shorten, consistent with that lenders want to assess the ability of the new CEO and negotiate new loans accordingly. This result is robust to the instrumental variable approach, where I instrument for CEO departures with CEOs' departure probabilities based on their age. The result also holds by classifying CEO departures as retirements if the departures are in accordance with firms' mandatory CEO retirement policies. Additional results related to loans are also consistent with the hypothesis that lenders shorten the loan maturity due to uncertainty surrounding the CEO turnover. Within firm-year observations, maturities decline by more

if lenders are more averse to new CEOs, or if lenders have a more intense relationship with the retiring CEO. Near CEO retirement, if the CFO is also departing, which makes the uncertainty about management is more severe, loan maturities decline by twice as much. When there is an heir apparent successor or the retired CEO stays in the firm in some other role, which lessens the uncertainty about CEO transition, maturities of new loans do not decrease. Soon after CEOs' retirements, more loans initiated during their tenure come due, compared to after other departures, suggesting lenders can negotiate with new CEOs sooner following more predictable CEO turnovers.

The first main contribution of the paper is to shed light on the important question of whether the inalienability of human capital affects the financing of firms. I show that loan maturities become shorter when CEOs are near retirement, i.e., when the threat of the withdrawal of the current executive human capital is high. This result implies that the potential departure of firms' human capital can affect the financing of firms.

The second main contribution is showing that higher uncertainty about management perceived by lenders can shift financing and maybe also the investment to more short-term. Although I detect such a phenomenon by focusing on the maturities of firms' new loans as CEOs approach retirements, the pattern of firms' shift in focus to the shorter term can be general. It will be interesting to analyze whether a reduction in long-term financing can be found near the end of CEOs' employment contracts, and whether other stakeholders (e.g. employees and boards) also impose such "short-termism" during CEOs' lame duck periods.

Some other important research questions remain open. How does the potential threat of losing key employees or entrepreneurs at venture firms affect the financing they receive? Why are devices such as debt covenants on management not more widely used? If one can obtain data on the timing of cash flows of investment projects, it will be interesting to see whether firms' investment also becomes more short-term when CEOs are to depart. Theoretically and empirically, can such a shift towards the short term be mitigated by making CEO departures less predictable? It is also worth investigating, theoretically and empirically, how CEOs at

different ages are valued differently, given that older CEOs' departures are more anticipated than younger CEOs. Can a young executive team around the CEO mitigate the imposed shorter horizons on lame duck CEOs?

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Figure 1: Probability of CEO Departure and CEO Age

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.

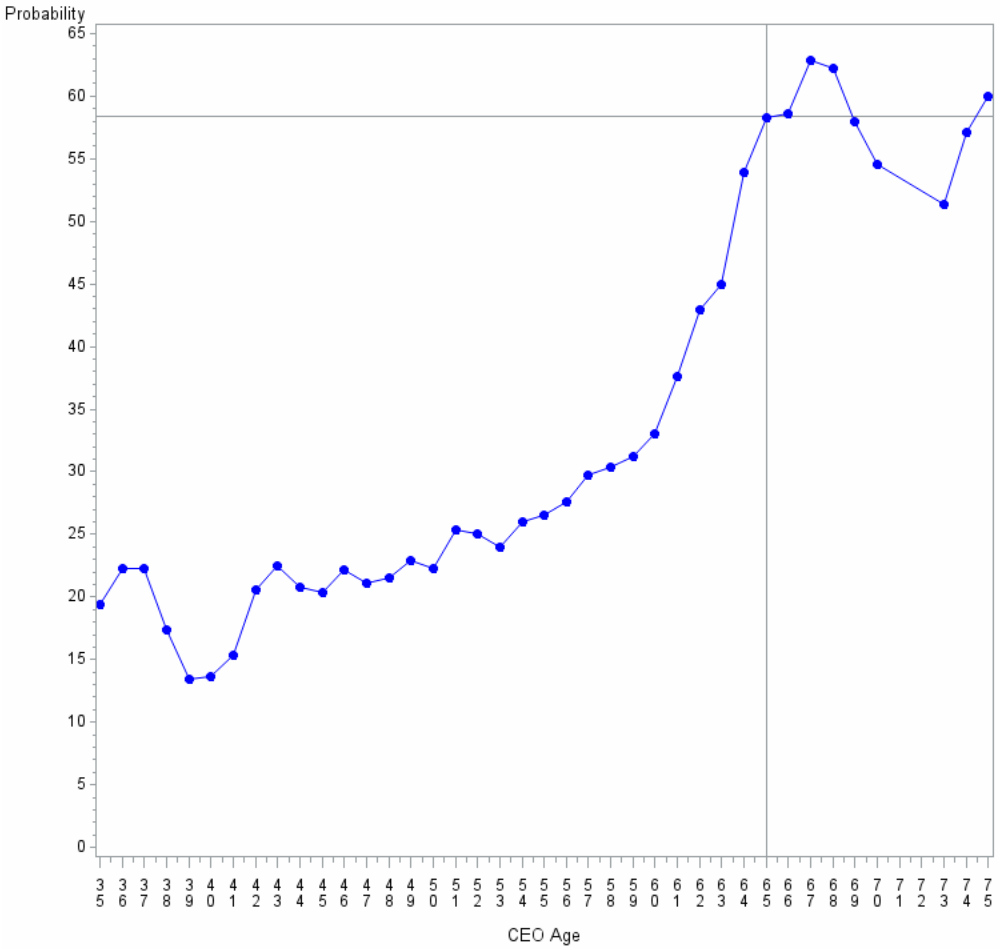

Table 1: Summary Statistics

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

	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	56.57	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 (%)	3576	23.23	9.59	18.40	20.39	26.22

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
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
Lenders' Aversion to New CEOs (Equally-Weighted)	7378	88.22	3.77	86.96	88.34	89.71
Lenders' Aversion to New CEOs (Size-Weighted)	7378	88.32	3.90	88.24	88.83	89.69
Relationship between Lenders and Firm (Equally-Weighted)	3905	64.79	39.78	30.00	81.82	100.00
Relationship between Lenders and Firm (Size-Weighted)	3905	66.82	40.15	33.33	90.94	100.00
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
Log (Firm Age)	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. I classify CEO departures at age 64-66 as retirement. The first two rowsoffer the difference between last year and the rest of CEO tenure, in the retirement and non-retirement subsample, respectively. The last row provides the difference between the retirement and non-retirement subsamples. I estimate the following two equations.

$$Y_{i,t} = \beta_1 \cdot 1\ Year\ to\ CEO\ Depart_{i,t} + \beta_2 \cdot 1\ Year\ to\ CEO\ Depart_{i,t} \cdot NonRetire_{i,j} + FE_{i,j} + FE_t + \varepsilon_{i,t}$$
$$Y_{i,t} = \beta_3 \cdot 1\ Year\ to\ CEO\ Depart_{i,t} + \beta_4 \cdot 1\ Year\ to\ CEO\ Depart_{i,t} \cdot Retire_{i,j} + FE_{i,j} + FE_t + \varepsilon_{i,t}$$

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 the CEO eventually left younger than 64 or older than 66. *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: Average New Loan Maturities before CEOs Depart, Firm-Year Level

This table estimates how average maturity of new loans changes as CEOs approach departure. Panel A presents the main results using OLS, Panel B presents robustness checks, and Panel C presents results using the instrumental variable approach. In Panel A, the dependent variable is average maturity of new loans at the firm-fiscal year level, weighting loans equally. *NonRetire* is a dummy variable equal to one if the CEO departed office younger than 64 or older than 66. In Panel B, Column (3) only includes CEOs with total tenure four years or longer. Column (4) only includes CEOs of age 60 or older. In (7), 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). In (8), the dependent variable is average maturity of new loans at the firm-fiscal year level, weighting loans by size. Panel C 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. Panel D uses information on firms' mandatory CEO retirement policies. 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** (Firm-Yr Level)				
	NonRetire=1 if CEO Left at Age<64 or >66			**Only Include CEOs Left at Age 64-66**	
	(1)	(2)	(3)	(4)	(5)
1 Year to CEO Depart	-0.57***	-0.45**	-0.45**	-0.45**	-0.43**
	(-3.17)	(-2.37)	(-2.43)	(-2.32)	(-2.18)
1 Year to CEO Depart × NonRetire	0.37*	0.40*	0.19		
	(1.83)	(1.96)	(0.89)		
NonRetire	0.04	-0.04			
	(0.25)	(-0.18)			
CEO Age	0.00	-0.01		-0.04	
	(0.34)	(-1.15)		(-0.57)	
CEO Tenure (Years)	0.05***	0.05***		-0.01	
	(2.94)	(2.66)		(-0.10)	
lag Log(Assets)	0.27	0.40	-0.11	-0.30	-0.21
	(0.76)	(0.85)	(-0.27)	(-0.37)	(-0.25)
lag Log(Assets) Sqr	-0.02	-0.03	0.01	-0.00	-0.00
	(-1.07)	(-1.03)	(0.45)	(-0.05)	(-0.09)
lag Leverage	-0.25	-0.39	-0.37	-1.68*	-1.78*
	(-0.68)	(-0.82)	(-0.89)	(-1.79)	(-1.81)
lag Asset Maturity	-0.17**	-0.06	-0.16**	-3.51**	-3.92**
	(-2.50)	(-0.89)	(-2.16)	(-2.19)	(-2.30)
lag Market/Book	-0.03	-0.00	-0.00	0.04	0.03
	(-0.90)	(-0.03)	(-0.04)	(0.30)	(0.18)
lag Abnormal Earnings	0.05	0.15*	0.06	-0.02	-0.03
	(0.58)	(1.70)	(0.76)	(-0.08)	(-0.14)
lag Stck Ret Std Dev	-0.65	-0.32	-0.71	1.51	1.22
	(-0.76)	(-0.35)	(-0.78)	(0.94)	(0.72)
lag Rated Dummy	-0.05	-0.01	-0.22	0.03	-0.21
	(-0.37)	(-0.06)	(-1.40)	(0.08)	(-0.41)
lag High Zscore Dummy	-0.20	-0.21	-0.19	-0.60***	-0.47*
	(-1.45)	(-1.09)	(-1.26)	(-2.61)	(-1.97)
Log (Firm Age)	-0.33	-0.31	0.35	0.95	0.86
	(-1.30)	(-0.96)	(1.05)	(1.25)	(1.10)
lag R&D/Sales	-0.28	-0.29	0.53	1.90**	2.13***
	(-0.25)	(-0.26)	(0.59)	(2.11)	(2.91)
lag R&D Missing Dummy	0.10	-0.09	0.24	0.89**	0.92**
	(0.41)	(-0.35)	(0.82)	(2.33)	(2.52)
Firm FE & Year FE	✓			✓	
Firm FE & Industry-Year FE		✓			
Firm-CEO FE & Year FE			✓		✓
N	2842	2569	2620	546	537

Panel B: Robustness Tests

Dependent Var:	**Avg New Loan Maturity**						
	Equal-Weighted						**Size-Weighted**
NonRetire=1 if CEO Left:	**<64 or >66**					**<64**	**<64 or >66**
			Total Tenure >= 4 Yrs	**CEO Age >=60**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1 Year to CEO Depart	-0.48***	-0.60***	-0.53***	-0.36*		-0.37**	-0.48***
	(-2.85)	(-3.29)	(-2.82)	(-1.69)		(-2.49)	(-2.74)
1 Year to CEO Depart	0.40**	0.43**	0.23	0.62**		0.14	0.28
× NonRetire	(2.08)	(2.06)	(1.12)	(2.12)		(0.80)	(1.44)
Years to CEO Depart (3->1)					0.27***		
					(2.93)		
Years to CEO Depart (3->1)					-0.09		
× NonRetire					(-0.94)		
NonRetire	-0.04	0.02	0.04	0.07	0.33	0.01	0.06
	(-0.28)	(0.10)	(0.21)	(0.18)	(1.08)	(0.08)	(0.36)
Controls		✓	✓	✓	✓	✓	✓
lag CEO Delta		0.00					
		(0.30)					
lag CEO Vega		-0.00					
		(-0.59)					
lag Top Mngt Ownership		-0.02					
		(-1.41)					
Firm FE & Year FE	✓	✓	✓	✓	✓	✓	✓
N	3359	2579	2698	661	2698	2842	2842

Panel C: Instrumental Variable Approach

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/100	1.00***		1.05***	
	(3.86)		(3.50)	
1 Year to CEO Depart		-1.32*		-1.02
		(-1.68)		(-1.13)
CEO Age	-0.01*	0.01	-0.01*	-0.01
	(-1.94)	(0.49)	(-1.92)	(-0.91)
CEO Tenure (Years)	0.04***	0.10***	0.04***	0.09**
	(7.71)	(2.62)	(6.71)	(2.04)
lag Log(Assets)	-0.24***	0.03	-0.26**	0.17
	(-2.67)	(0.06)	(-2.10)	(0.32)
lag Log(Assets) Square	0.02***	-0.01	0.02**	-0.01
	(3.00)	(-0.24)	(2.18)	(-0.43)
lag Leverage	0.21**	-0.02	0.21*	-0.16
	(2.07)	(-0.05)	(1.81)	(-0.32)
lag Asset Maturity	-0.00	-0.18***	-0.03	-0.10
	(-0.05)	(-2.60)	(-1.16)	(-1.17)
lag Market/Book	-0.01	-0.04	-0.01	-0.01
	(-1.03)	(-1.00)	(-0.95)	(-0.19)
lag Abnormal Earnings	-0.01	0.04	-0.04*	0.11
	(-0.38)	(0.46)	(-1.68)	(1.07)
lag Stck Ret Std Dev	-0.35	-1.03	0.00	-0.32
	(-1.64)	(-1.10)	(0.01)	(-0.34)
lag Rated Dummy	0.04	-0.01	0.08*	0.05
	(1.13)	(-0.07)	(1.90)	(0.31)
lag High Zscore Dummy	-0.05	-0.25	-0.08	-0.28
	(-1.20)	(-1.64)	(-1.55)	(-1.27)
Log (Firm Age)	-0.05	-0.38	-0.04	-0.34
	(-0.81)	(-1.48)	(-0.41)	(-0.99)
lag R&D/Sales	-0.26	-0.59	-0.33	-0.64
	(-1.16)	(-0.45)	(-1.30)	(-0.50)
lag R&D Missing Dummy	-0.01	0.08	-0.04	-0.14
	(-0.15)	(0.34)	(-0.65)	(-0.51)
Firm FE & Year FE	✓	✓		
Firm FE & Industry-Year FE			✓	✓
N	3325	3325	2842	2842
Cragg-Donald Wald F statistic	32.48		25.94	

Panel D: Using CEO Mandatory Retirement Policies

Dependent Var:	**Equal-Weighted Avg New Loan Maturity (Firm-Year Level)**				
				Only CEOs Left in Accordance with Mandatory Retirement Policies	
	(1)	(2)	(3)	(4)	(5)
1 Year to CEO Depart	-0.71***	-0.72***	-0.68***	-0.67**	-0.72**
	(-3.08)	(-2.85)	(-3.19)	(-2.64)	(-2.57)
1 Year to CEO Depart	0.49*	0.58**	0.42*		
× NonMandatoryRetire	(1.96)	(2.21)	(1.74)		
NonRetire	-0.06				
	(-0.23)				
CEO Age	0.00	-0.01		-0.12	
	(0.11)	(-1.01)		(-1.20)	
CEO Tenure (Years)	0.06***	0.06***		0.14	
	(3.19)	(2.95)		(0.64)	
lag Log(Assets)	0.25	0.38	-0.14	3.59	1.04
	(0.70)	(0.82)	(-0.35)	(1.17)	(0.33)
lag Log(Assets) Sqr	-0.02	-0.03	0.01	-0.17	-0.06
	(-1.01)	(-1.04)	(0.54)	(-1.10)	(-0.38)
lag Leverage	-0.27	-0.48	-0.39	-1.24	-1.96
	(-0.72)	(-0.99)	(-0.95)	(-0.46)	(-0.70)
lag Asset Maturity	-0.18**	-0.07	-0.17**	2.16	-3.89
	(-2.51)	(-0.88)	(-2.17)	(0.35)	(-0.76)
lag Market/Book	-0.03	0.01	-0.00	0.42	-0.02
	(-0.90)	(0.41)	(-0.04)	(0.86)	(-0.05)
lag Abnormal Earnings	0.05	0.18**	0.06	-0.28	0.02
	(0.57)	(2.09)	(0.75)	(-0.28)	(0.02)
lag Stck Ret Std Dev	-0.61	-0.83	-0.68	-2.05	-2.34
	(-0.71)	(-0.86)	(-0.75)	(-0.50)	(-0.58)
lag Rated Dummy	-0.05	-0.04	-0.22	-1.08	-2.40***
	(-0.39)	(-0.26)	(-1.40)	(-1.20)	(-3.35)
lag High Zscore Dummy	-0.21	-0.33	-0.20	-0.63*	-0.50
	(-1.48)	(-1.62)	(-1.27)	(-1.88)	(-1.17)
Log (Firm Age)	-0.33	-0.28	0.33	3.68	3.66
	(-1.33)	(-0.84)	(0.99)	(1.22)	(1.03)
lag R&D/Sales	-0.30	-0.26	0.54	-2.29	1.90
	(-0.26)	(-0.23)	(0.60)	(-0.13)	(0.14)
lag R&D Missing Dummy	0.09	-0.02	0.24	-0.25	-0.49
	(0.37)	(-0.07)	(0.81)	(-0.35)	(-0.78)
Firm FE & Year FE	✓			✓	
Firm FE & Industry-Year FE		✓			
Firm-CEO FE & Year FE			✓		✓
N	2842	2578	2622	188	189

Table 4: New Loan Maturities before CEOs Depart, Loan-Level

This table estimates how maturities of individual loans change as CEOs approach likely retirements. The dependent variable is maturities of individual new loans. Panel A presents the main results using OLS. Panel B presents results using the instrumental variable approach. Panel C uses information on firms' mandatory CEO retirement policies. Panel D uses system of simultaneous equations assuming loan maturities and spreads are jointly determined, using loans initiated under CEOs who eventually departed between age 64 and 66. The firm-level 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-year level. ***, ** and * denote statistical significance at 1%, 5% and 10% levels.

Panel A: Main Results

Dependent Var:	**Maturity (Loan-Level)**							
					Only Include CEOs Left at Age 64-66			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1 Year to CEO Depart	-0.38**	-0.51***	-0.38**	-0.46**	-0.32*	-0.67**	-0.35*	-0.67**
	(-2.30)	(-3.42)	(-2.23)	(-2.56)	(-1.66)	(-2.31)	(-1.85)	(-2.14)
1 Year to CEO Depart	0.26	0.53***	0.26	0.38*				
× NonRetire	(1.34)	(2.94)	(1.24)	(1.75)				
NonRetire	0.23*	0.04						
	(1.70)	(0.26)						
CEO Age	0.01	-0.02			0.03	0.19**		
	(0.56)	(-1.56)			(0.74)	(2.20)		
CEO Tenure (Years)	0.04**	0.05***			-0.06	-0.14		
	(2.56)	(2.95)			(-1.25)	(-1.53)		
Firm-Level Controls	✓	✓	✓	✓	✓	✓	✓	✓
Term Spread/100	-0.17	-0.16	-0.14	-0.12	-0.36	-0.14	-0.41*	-0.12
	(-1.38)	(-1.13)	(-0.98)	(-0.71)	(-1.61)	(-0.56)	(-1.90)	(-0.45)
Credit Spread	-0.00	-0.00	0.00	0.00	-0.00	-0.00	-0.00	-0.00
	(-0.29)	(-0.44)	(0.22)	(0.51)	(-1.18)	(-0.96)	(-1.48)	(-0.67)
Log Loan Size	0.10*	0.13**	0.11**	0.14**	0.12	0.18**	0.13*	0.17*
	(1.87)	(2.47)	(2.04)	(2.36)	(1.56)	(1.97)	(1.71)	(1.80)
Performance Pricing	0.24***	0.27***	0.25***	0.29***	0.29*	0.22	0.29*	0.25
Dummy	(2.70)	(2.79)	(2.66)	(2.73)	(1.82)	(0.99)	(1.84)	(1.07)
Term Loan Dummy	0.28***	0.30***	0.25***	0.27***	0.33**	0.43***	0.27*	0.43***
	(3.10)	(3.39)	(2.65)	(2.88)	(2.10)	(2.73)	(1.66)	(2.77)
Loan Purpose FE	✓	✓	✓	✓	✓	✓	✓	✓
Firm FE & Year FE	✓				✓			
Firm FE & Industry - Year FE		✓				✓		
Firm-CEO FE & Year FE			✓				✓	
Firm-CEO FE & Industry -Year FE				✓				✓
N	5756	5618	5635	5494	1161	1039	1157	1036

Panel B: Instrumental Variable Approach

Dependent Var: (Loan Level)	**1 Year to CEO Depart**	**Maturity**	**1 Year to CEO Depart**	**Maturity**
	(1)	(2)	(3)	(4)
CEO Depart Probability/100	0.95***		0.94***	
	(4.66)		(3.96)	
1 Year to CEO Depart		-1.49		-2.51**
		(-1.48)		(-2.11)
CEO Age	-0.01	0.01	-0.01	-0.00
	(-1.61)	(0.69)	(-1.35)	(-0.27)
CEO Tenure (Years)	0.04***	0.10**	0.05***	0.18***
	(7.70)	(2.24)	(7.78)	(2.78)
Firm-Level Controls	✓	✓	✓	✓
Term Spread/100	0.01	-0.13	0.04*	-0.04
	(0.50)	(-0.95)	(1.89)	(-0.23)
Credit Spread	-0.00	-0.00	-0.00	-0.00
	(-0.85)	(-0.06)	(-0.46)	(-0.22)
Log Loan Size	-0.00	0.10*	-0.00	0.11*
	(-0.26)	(1.72)	(-0.14)	(1.78)
Performance Pricing	-0.01	0.22**	-0.02*	0.16
Dummy	(-0.79)	(2.49)	(-1.82)	(1.49)
Term Loan Dummy	0.00	0.27***	0.01	0.29***
	(0.44)	(2.74)	(1.05)	(3.00)
Loan Purpose FE	✓	✓	✓	✓
Firm FE & Year FE	✓	✓		
Firm FE & Industry-Year FE			✓	✓
N	5157	5157	5025	5025

Panel C: Using CEO Mandatory Retirement Policiess

Dependent Var:	**Maturity (Loan-Level)**							
					CEOs Left in Accordance with Mandatory Retirement Policies			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1 Year to CEO Depart	-0.61***	-0.55**	-0.57**	-0.58**	-0.56*	-1.26***	-0.52*	-1.37***
	(-2.64)	(-2.25)	(-2.26)	(-2.18)	(-1.84)	(-4.04)	(-1.85)	(-4.36)
1 Year to CEO Depart	0.43*	0.44*	0.35	0.37				
× NonMandatoryRetire	(1.73)	(1.73)	(1.28)	(1.34)				
NonRetire	0.31	0.31						
	(1.41)	(1.34)						
CEO Age	0.01	-0.02*			0.23	0.13		
	(0.43)	(-1.77)			(1.48)	(0.46)		
CEO Tenure (Years)	0.05***	0.06***			-0.26	0.07		
	(2.80)	(3.50)			(-1.03)	(0.19)		
Firm-Level Controls	✓	✓	✓	✓	✓	✓	✓	✓
Term Spread/100	-0.14	-0.15	-0.14	-0.19	-0.64	-0.65	-0.73**	-0.61
	(-1.03)	(-1.01)	(-0.95)	(-1.11)	(-1.65)	(-1.08)	(-2.03)	(-0.92)
Credit Spread	0.00	-0.00	0.00	0.00	-0.00	-0.00	-0.00	-0.00
	(0.01)	(-0.15)	(0.42)	(0.53)	(-1.07)	(-0.65)	(-0.96)	(-0.32)
Log Loan Size	0.10*	0.11*	0.12*	0.12*	-0.11	-0.17	-0.12	-0.18
	(1.84)	(1.84)	(1.93)	(1.75)	(-0.85)	(-1.04)	(-0.96)	(-1.07)
Performance Pricing	0.24***	0.22**	0.25**	0.24**	0.97***	0.95	0.92***	0.93
Dummy	(2.63)	(2.13)	(2.57)	(2.05)	(3.08)	(1.65)	(2.96)	(1.60)
Term Loan Dummy	0.26***	0.27***	0.25***	0.26***	0.78***	0.90**	0.77***	0.91**
	(2.86)	(2.72)	(2.62)	(2.58)	(2.70)	(2.31)	(2.66)	(2.27)
Loan Purpose FE	✓	✓	✓	✓	✓	✓	✓	✓
Firm FE & Year FE	✓				✓			
Firm FE & Industry - Year FE		✓				✓		
Firm-CEO FE & Year FE			✓				✓	
Firm-CEO FE & Industry -Year FE				✓				✓
N	5163	5031	5057	4929	419	359	424	365

Panel D: System of Simultaneous Equations, Loan Pricing and Maturity—Retirement Sample

Dependent Var (Loan Level):	**Loan Maturity**	**Loan Spread**
	(1)	(2)
Loan Spread	-0.01***	
	(-3.71)	
1 Year to CEO Depart	-0.47**	
	(-2.09)	
Loan Maturity		21.73***
		(5.59)
Credit Spread		1.20***
		(8.05)
CEO Age	0.05**	1.92**
	(2.29)	(2.48)
CEO Tenure (Years)	0.04*	-0.75
	(1.75)	(-0.88)
Firm-Level Controls	✓	✓
Term Spread/100	0.04	14.69***
	(0.47)	(3.77)
Log Loan Size	0.15*	-10.58***
	(1.76)	(-2.72)
Performance Pricing Dummy	0.12	-30.51***
	(0.91)	(-4.53)
Term Loan Dummy	1.56***	36.16***
	(7.67)	(4.05)
Loan Purpose FE	✓	✓
N	1003	1003

Table 5: New Loan Maturities and Spreads before CEO Retirement and Lenders' Aversion to New CEOs

This table estimates how maturities of individual loans change as CEOs approach likely retirements, depending on lenders' aversion to new CEOs. I only include loans taken out by CEOs who left at age 64-66. The dependent variable is maturities of individual new loans. See Table A1 for variable definitions. T-statistics are in parentheses. Standard errors are corrected for clustering at the firm-year level. ***, ** and * denote statistical significance at 1%, 5% and 10% levels.

Dependent Var (Loan Level):	**Loan Maturities**		**Loan Spreads**	
	Only CEOs Left at Age 64-66			
Aversion Defined by Weighting Loans	Equally	by Size	Equally	by Size
	(1)	(2)	(3)	(4)
1 Year to CEO Retire × Lenders' Aversion to New CEOs	-0.52*	-0.44**	-20.25**	-23.42*
	(-1.71)	(-2.32)	(-2.15)	(-1.72)
Lenders' Aversion to New CEOs	0.07	0.09**	-1.47	0.03
	(1.39)	(2.25)	(-0.58)	(0.02)
Term Spread/100	-0.39	-0.26	34.39***	35.62***
	(-1.36)	(-0.92)	(2.81)	(2.97)
Credit Spread	-0.00	-0.00	0.59**	0.58*
	(-1.23)	(-1.11)	(2.15)	(2.00)
Log Loan Size	0.07	0.06	-5.47	-5.75
	(0.52)	(0.49)	(-1.22)	(-1.30)
Performance Pricing Dummy	0.30	0.27	-24.14**	-25.57**
	(0.85)	(0.76)	(-2.30)	(-2.46)
Term Loan Dummy	0.47**	0.46**	12.45*	13.08*
	(2.38)	(2.34)	(1.87)	(1.90)
Loan Maturity			3.08*	3.05*
			(1.94)	(1.88)
Loan Purpose FE	✓	✓	✓	✓
Firm-by-Year FE	✓	✓	✓	✓
N	768	791	646	646

Table 6: New Loan Maturities and Spreads before CEO Retirement and Lenders' Relationship with the Retiring CEO

This table estimates how maturities of individual loans change as CEOs approach likely retirements, depending on lenders' relationship with the retiring CEO. I only include loans taken out by CEOs who left at age 64-66. The dependent variable is maturities of individual new loans. See Table A1 for variable definitions. T-statistics are in parentheses. Standard errors are corrected for clustering at the firm-year level. ***, ** and * denote statistical significance at 1%, 5% and 10% levels.

Dependent Var (Loan Level):	**Loan Maturities**		**Loan Spreads**	
	Only CEOs Left at Age 64-66			
Relationship Defined by Weighting Loans	Equally	by Size	Equally	by Size
	(1)	(2)	(3)	(4)
1 Year to CEO Retire × Relationship between	-0.04***	-0.03**	-2.85*	-1.55
Lender & Retiring CEO	(-3.47)	(-2.13)	(-1.98)	(-1.61)
Relationship between Lender & Retiring CEO	0.00	0.00	-0.33*	-0.26
	(0.35)	(0.29)	(-1.94)	(-1.57)
Term Spread/100	-0.39	-0.39	34.00***	34.83***
	(-1.21)	(-1.23)	(2.78)	(2.86)
Credit Spread	-0.01***	-0.01***	0.45*	0.43*
	(-2.79)	(-2.81)	(1.83)	(1.72)
Log Loan Size	0.02	0.01	-4.60	-4.75
	(0.14)	(0.10)	(-0.92)	(-0.93)
Performance Pricing Dummy	0.28	0.29	-13.13*	-13.20*
	(0.75)	(0.76)	(-2.01)	(-2.02)
Term Loan Dummy	0.49**	0.48**	11.23**	11.42**
	(2.19)	(2.14)	(2.33)	(2.40)
Loan Maturity			0.39	0.38
			(0.16)	(0.16)
Loan Purpose FE	✓	✓	✓	✓
Firm-by-Year FE	✓	✓	✓	✓
N	481	481	420	420

Table 7: New Loan Maturities before CEO Retirement and CFO Departure

This table estimates how average maturity of new loans change as CEOs approach likely retirements and how such change is different when the CFO is departing. The dependent variable is equal-weighted average maturity of new loans at the firm-year level. Columns (1) and (2) only include CEOs who left at age 64-66. *1 Year to CEO Retire* equals one if the CEO left in year $t+1$. *1 Year to CFO Depart* equals one if the CFO departed in year $t+1$, 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.

Dependent Var:	**Avg Loan Maturity (Firm-Year Level)**		
	Only CEOs Left at Age 64-66		
		CFO not leaving or information missing	
	(1)	(2)	(3)
1 Year to CEO Retire × 1 Year to CFO Depart	-1.16**		
	(-2.42)		
1 Year to CEO Retire	-0.01	-0.47**	
	(-0.03)	(-2.37)	
1 Year to CFO Depart	0.10		-0.05
	(0.55)		(-0.73)
CEO, Firm Controls	✓	✓	✓
Firm FE & Year FE	✓	✓	✓
N	465	507	2353

Table 8: New Loan Maturities before CEO Retirement and Succession Transition

Column (1) 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. Column (2) estimates how average maturity of new loans change as CEOs approach likely retirements for how such change is different between CEOs who stayed with the firm at least until the following fiscal year. 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)		
Only CEO Eventually Left at Age >=64		
	(1)	(2)
1 Year to CEO Retire × Have Heir Successor	1.18*	
	(1.74)	
1 Year to CEO Retire × CEO Staying		1.25***
		(2.66)
1 Year to CEO Depart	-0.66*	-0.90***
	(-1.79)	(-3.69)
Have Heir Successor	-0.55**	
	(-2.11)	
CEO Staying		-0.43*
		(-1.96)
Controls	✓	✓
Industry FE & Year FE	✓	✓
N	211	235

Table 9: 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. The dummy variable *Retire* equals one if the CEO eventually left office at age 64-66. Column (2) only includes 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)**	
		Loans Initiated the Year before CEO Departure
	(1)	(2)
1-6 Months After CEO Left	2.1321**	4.7954**
× Retire	(2.12)	(2.01)
7-12 Months After CEO Left	-0.2876	0.2178
× Retire	(-0.43)	(0.15)
13-18 Months After CEO Left	-2.5423***	-1.8453*
× Retire	(-3.44)	(-1.84)
1-6 Months After CEO Left	-0.0408	-0.0829
× CEO Total Tenure	(-1.03)	(-0.69)
7-12 Months After CEO Left	-0.0601	-0.0991
× CEO Total Tenure	(-1.15)	(-1.48)
13-18 Months After CEO Left	-0.0439	0.0309
× CEO Total Tenure	(-0.67)	(0.39)
1-6 Months After CEO Left	5.0028***	7.1824***
	(7.99)	(3.17)
7-12 Months After CEO Left	6.2451***	5.2781***
	(7.02)	(4.76)
13-18 Months After CEO Left	6.3749***	2.2328***
	(6.52)	(3.07)
Retire	0.0157	-0.0277
	(1.04)	(-0.83)
CEO Total Tenure	-0.0061***	-0.0042
	(-5.13)	(-1.45)
Firm FE	✓	✓
Year of Departure FE	✓	✓
N	232673	118960

Appendices

Table A1: Variable Definitions

Variable	Definition
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
1 Year to CEO Retire	equals one if the CEO left in year t+1 at retirement age (64-66)
Lenders' Aversionto New CEOs	I use the number (or dollar amount) of loans the lender makes to CEOs who are not new (beyond the first two years of their tenure) as a percentage of all of their loans as a proxy for a lender's aversion to new CEOs. I then take the average across the lead lenders for each loan, to obtain a loan-level measure
Relationship btwn Lender & CEO	for each lead lender in a loan, I calculate the number of loans between a lender-CEO pair in the previous five years (or CEOs' tenure in office if shorter than five years), as a percentage of all the loans taken out by the CEO in the same period. Then I take the average across all the lead lenders in a loan, and obtain loan-level measure
1 Year to CFO Depart	equals one if the CFO departed in year t+1, zero otherwise
NonRetire	equals one if the CEO is in the less-likely-retirement sample, leaving office before turning 64 or after 66, 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: Other Aspects of New Loans and CEO Departure

This table estimates how different aspects of new loans change as CEOs approach departure. The firm-year level dependent variable is the average number of new lenders in Column (1), average loan spreads in (2), average number of covenants in (3), average loan size scaled by firms' total debt in (4), total number of loans in (5), the total loan amount scaled by firms' debt in (6), and the amount of term loans scaled by all loans in (7). *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.

	Average Across Loans in a Firm-Year						
Dependent Var: (Firm-Year Level)	**# of New Lenders**	**Loan Spreads**	**# of Covenants**	**Loan Size/ Debt**	**# of Loans**	**Loan Amt/ Debt**	**Term Loan Amt / All Loan Amt**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1 Year to CEO	0.14	-1.21	-0.29	-40.11	-0.04	-42.89	-4.29
Depart	(1.00)	(-0.15)	(-1.13)	(-0.36)	(-0.77)	(-0.64)	(-1.11)
1 Year to CEO	-0.13	5.34	0.18	310.77**	0.02	106.04	1.50
Depart × NonRetire	(-0.87)	(0.62)	(0.68)	(2.07)	(0.34)	(1.06)	(0.37)
NonRetire	0.01	-10.46	-0.05	-321.57	-0.04	-134.31	5.61*
	(0.06)	(-1.17)	(-0.20)	(-1.24)	(-0.88)	(-1.28)	(1.77)
CEO, Firm Controls	✓	✓	✓	✓	✓	✓	✓
Firm FE & Year FE	✓	✓	✓	✓	✓	✓	✓
N	3055	2897	2061	2854	7800	7576	2892

Table A3: CEO Pay before CEO Departure

This table estimates how CEO pay changes as CEOs approach departure. The dependent variable is the natural log of CEOs' total pay, variable *tdc*1 in ExecuComp, at the firm-fiscal year level. *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:	**Log (CEO Total Pay)**	
NonRetire=1 if CEO Left:	**<64 or >66**	
	(1)	(2)
1 Year to CEO Depart	0.0001	-0.0290
	(0.00)	(-0.59)
1 Year to CEO Depart × NonRetire	-0.0638	-0.0607
	(-1.16)	(-1.18)
NonRetire	-0.0422	
	(-0.93)	
Year FE	✓	✓
Firm FE	✓	
Firm-CEO FE		✓
N	9872	9872

Table A4: Loan Maturity before CEO Retirement and G-Index

This table estimates how the change in loan maturity before CEO retirement varies with firms' G-index. The dependent variable is equally-weighted average maturity of new loans at the firm-year level. $G\ index{\geq}14$ is a dummy variable that equals one if G-index is 14 or higher, zero otherwise. $G\ index{\leq}5$ is a dummy variable that equals one if G-index is 5 or lower, zero otherwise. Column (1) only includes CEOs who eventually left between age 64 and 66, (2) those who eventually left at age 64 and older. Industry fixed effects are at the SIC 2-digit level. 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.

$$
\begin{aligned}
&Avg\ New\ Loan\ Maturity_{i,t} = \beta_1 . 1\ Year\ to\ CEO\ Retire_{i,t} . G\ index{\geq}14_{i,t-1} \\
&+ \beta_2 . 1\ Year\ to\ CEO\ Retire_{i,t} . G\ index{\leq}5_{i,t-1} + \beta_3 . 1\ Year\ to\ CEO Retire_{i,t} + \beta_4 . G\ index{\geq}14_{i,t-1} \\
&+ \beta_5 \cdot G\ index{\leq}5_{i,t-1} + \lambda_1 . CEO\ Age_{i,t} + \lambda_2 . CEO\ Tenure_{i,t} + \gamma . Controls_{i,t-1} + FE_i + FE_t + \epsilon_{i,t}
\end{aligned}
$$

$G\ index{\geq}14_{i,t-1}$is a dummy variable that equals one if G-index is 14 or higher, zero otherwise. $G\ index{\leq}5_{i,t-1}$is a dummy variable that equals one if G-index is 5 or lower, zero otherwise. The hypothesis tested predicts that $\beta_2 + \beta_5 < \beta_1 + \beta_4$. The p-value of the F test is at the bottom of Table B5.

Dependent Var:	**Avg Loan Maturity (Firm-Year Level)**	
Include if CEO Eventually Left at Age:	**64-66**	**>=64**
	(1)	(2)
(a) 1 Year to CEO Retire × G-index>=14	0.28	-0.72
	(0.45)	(-0.91)
(b) 1 Year to CEO Retire × G-index<=5	1.93***	1.17**
	(3.05)	(2.28)
(c) 1 Year to CEO Retire	-0.40	-0.10
	(-1.56)	(-0.55)
(d) G-index>=14	-0.78**	-0.34
	(-2.16)	(-1.31)
(e) G-index<=5	1.26***	0.81**
	(3.22)	(2.39)
CEO, Firm Controls	✓	✓
Industry FE & Year FE	✓	✓
N	374	577
Prob > F for H0: (b)+(e)=(a)+(d)	0.0012	0.0067

Table A5: 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. Columns (2) and (4) only include CEOs who eventually left at 64-66. 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 New Loan Maturity (Firm-Year Level)**			
	Controlling for CEO Inside Debt		**CEO Inside Debt not Missing**	
		Only Include CEOs Left at 64-66		Only Include CEOs Left at 64-66
	(1)	(2)	(3)	(4)
1 Year to CEO Depart	-0.48	-0.53	-0.47	-0.50
	(-1.43)	(-1.54)	(-1.41)	(-1.49)
lag CEO Inside Debt	-0.04*	-0.05		
	(-1.79)	(-1.26)		
1 Year to CEO Depart	0.34		0.34	
× NonRetire	(0.99)		(0.97)	
NonRetire	-0.03		-0.02	
	(-0.19)		(-0.12)	
CEO, Firm Controls	✓	✓	✓	✓
Firm FE & Year FE	✓	✓	✓	✓
N	756	764	764	764

Table A6: Firm-Year Average Maturity of New Loans before CEO Departur

This table estimates how average maturity of new loans change as CEOs approach departure, and how it varies for CEOs who depart before turning 64, at age 64-66, and beyond 66. The dependent variable is average maturity of new loans at the firm-year level, weighting loans equally. 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 (Firm-Year Level):	**Equal-Weighted Avg New Loan Maturity**
	(1)
1 Year to CEO Depart	-0.56***
	(-3.14)
1 Year to CEO Depart × CEO Left Before 64	0.34*
	(1.66)
1 Year to CEO Depart × CEO Left After 66	0.60**
	(2.06)
CEO, Firm Controls	✓
Firm FE & Year FE	✓
N	2842