Why Are U.S. Firms Using More Short-Term Debt?*

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Abstract

The debt maturity of U.S. industrial firms decreased over the past three decades. This decrease in maturity is driven by the smallest firms for which the median percentage of long-term debt has decreased from 53% in 1976 to 6% in 2008. For large firms, however, debt maturity has not declined. Information asymmetry plays an important role in explaining the decrease in debt maturity, while debt and managerial agency problems do not seem to contribute to the decrease. More interesting, we show that firms are using more short-term debt regardless of their characteristics. This unexpected component of debt maturity is more important than changing firm characteristics in explaining the decline in debt maturity and is a result of the new firms issuing public equity in the 1980s and 1990s. Our findings suggest that the shortening of debt maturity has increased the exposure of firms to credit and liquidity shocks.

JEL Classification: G30; G32

Keywords: Capital structure; Debt maturity; Information asymmetry; New listings; Agency costs

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1. Introduction

The structure of corporate debt maturity is an essential component of the firm's financial policy. The choice between short-term versus long-term debt can have important effects on real corporate behavior, such as investment spending, in the presence of credit and liquidity shocks. A firm that uses more short-term debt faces more frequent renegotiations and therefore is more likely to be affected by a credit supply shock and to face financial constraints. Evidence supports that corporate debt maturity had important real effects for industrial firms during the 2007-2008 financial crisis (Almeida, Campello, Laranjeira, and Weisbenner (2009)).

This paper studies the evolution of corporate debt maturity of U.S. industrial firms from 1976 to 2008. We document a secular decrease in the debt maturity of the typical firm. This negative trend is economically important with the median percentage of debt maturing in more than three years decreasing from 64% in 1976 to 49% in 2008. Over this period, the median percentage of debt maturing in more than three years hit a record low of 31% in 2000 and has always been below the 1976 level of 64%. Indeed, the estimated time trend coefficient of the median percentage of debt maturing in more than three years corresponds to a yearly decrease of 0.61% and is highly significant. If we look at longer debt maturities we find an even larger drop. The median percentage of debt maturing in more than five years decreased from 44% in 1976 to nearly zero in 2008. This trend is unique to debt maturity as leverage has been stable over the sample period with a median total debt-to-assets ratio of about 25%.

We investigate why this decrease in corporate debt maturity has occurred. We test whether the evolution in corporate debt maturity is explained by changes in its known determinants. We find that firms with higher information asymmetry are the ones responsible for the decrease in debt maturity. In contrast, agency costs, signalling and liquidation risk theories do not seem to be consistent with the evolution of debt maturity. However, changes in firm characteristics or changes in correlations between debt maturity and firm characteristics do not account for most of the documented trend.

We then test the evolution in debt maturity is explained by the fact that the typical firm has changed over the sample period. Riskier firms have listed publicly in the 1980s and 1990s, and thus the composition of firms of publicly traded firms has changed significantly over the last decades (Fama and French (2004), and Brown and Kapadia (2007)). We find that firms that have

become publicly listed over the past decades—new listings—largely explain the decrease in corporate debt maturity. There is no significant trend in debt maturity after accounting for the year a firm lists.

There are several theories which aim to explain corporate debt maturity including agency costs, asymmetric information, and signaling and liquidity risk. The use of short-term debt minimizes agency costs of debt such as underinvestment (Myers (1977)) and asset substitution (Leland and Toft (1996)) by making renegotiation more frequent. This allows debt to be repriced so that gains from new projects do not accrue to debtholders. Consistent with this agency hypothesis, Barclay and Smith (1995), Guedes and Opler (1996), and others find that debt maturity is negatively related to growth opportunities and positively related to firm size. Another view is that short-term debt is a mechanism to discipline managers reducing agency conflicts between managers and shareholders (Datta, Iskandar-Datta, and Raman (2005), and Brockman, Martin, and Unlu (2010)).

Signaling and liquidity risk have also been proposed to explain debt maturity choice. Firm's choice of debt maturity can signal private information held by borrowers to outside investors (Flannery (1986)). Diamond (1991) argues that short-term debt allows for a reduction of borrowing costs when good news are announced, but exposes the firm to liquidity risk (i.e., the risk of inefficient liquidation because refinancing is not possible). This trade-off between signaling and liquidity risk implies that both very low-quality firms and very-high quality firms issue more short-term debt, while medium-quality firms issue more long-term debt. Empirical evidence supports that firms use debt maturity structure to signal information to the market (Barclay and Smith (1995)), but there is also support for a non-monotonic relation between firm's quality and debt maturity as predicted by liquidity risk hypothesis (Guedes and Opler (1996), and Stohs and Mauer (1996)).

Asymmetric information has also been used to explain debt maturity choice. In adverse selection models debt maturity is chosen in order to minimize the effects of private information on the cost of financing. The prediction of these models is that firms with higher level of information asymmetry will issue short-term debt to avoid locking in their cost of financing with long-term debt since they expect to borrow at more favorable terms later. Consistent with the asymmetric information hypothesis, Barclay and Smith (1995), Berger, Espinosa-Vega, Frame,

and Miller (2005) and others find that firms with higher information asymmetry issue more short-term debt.

We first test if the trend in debt maturity is consistent with the existing theories by examining the evolution of debt maturity for different subsamples of firms. We find that the decrease in debt maturity is driven by small firms. For small firms, the median percentage of debt maturing in more than three years decreases from 53% in 1976 to 6% in 2008. For large firms it is always about 70% over the sample period, although there is some cyclical behavior of debt maturity for large firms. This heterogeneity of debt maturity across small and large firms suggests that both agency costs and asymmetric information can be at work in explaining the decline in corporate debt maturity.

We investigate the role played by agency costs. We find that firms with lower agency costs (as proxied by lower leverage, book-to-market, asset growth, and capital expenditures) experience significant decreases in debt maturity. For some of these proxies the decrease in debt maturity is even stronger in the subsample of firms with lower agency costs than in the subsample of higher agency costs. When we divide firms by proxies of managerial agency costs (as proxied by governance index, board independence, and managerial ownership) we do not see differences in patterns across groups of firms that could explain the decrease in debt maturity. Thus, the evidence does not support the notion that the evolution of debt maturity can be explained by conflicts of interest between shareholders and debtholders or between managers and shareholders.

We then investigate the role played by asymmetric information. We divide firms in our sample by proxies of information asymmetry, including tangibility, R&D expenditures, credit rating, S&P 500 index membership, and NYSE listing. We find that debt maturity falls significantly more for low tangibility, R&D-intensive, non-rated, non-S&P 500, and non-NYSE. This evidence is consistent with firms with higher level of information asymmetry generating the decrease in debt maturity. The evolution of debt maturity for firms with lower information asymmetry is markedly different.

The findings are consistent when using more dynamic proxies or market microstructure measures of adverse selection. We find that firms in the subsamples of low institutional ownership, low analyst coverage, high dispersion of analyst forecasts and high volatility

experience a more pronounced increase in the use of short-term debt. Furthermore, the decrease in debt maturity is driven mainly by firms in the subsamples of high illiquidity (Amihud (2002)), probability of informed trading (Easley, Kiefer, and O'Hara (1996)), and effective bid-ask spread (Roll (1984)).

The evidence on the evolution of debt maturity for subsamples of firms does not seem to be consistent with the liquidity risk nor the signaling hypotheses. We find no evidence that high-quality firms, as proxied by abnormal earnings or credit quality, experienced significantly different evolution of debt maturity from low-quality firms. Maturity matching and tax considerations also do not explain the decrease in debt maturity. Finally, macroeconomic factors do not also seem to play a role in explaining the trend in corporate debt maturity.

We corroborate the finding of a decline in corporate debt maturity using new debt issues. We find a dramatic decrease in the maturity of new bond issues. The median maturity drops from 25 years in 1976 to less than ten years in 2008, with a minimum of seven years in 2000. In contrast, we do not observe a clear trend in the median maturity of new syndicated loans. These findings support our balance-sheet evidence of a decrease in corporate debt maturity. Syndicated loans are just a fraction of private debt markets and we cannot observe directly the characteristics, including maturity, of small non-syndicated bank loans. However, using aggregate data (Flow of Funds Accounts from the Federal Reserve), we can see that the fraction of public debt in total corporate debt financing grew from 50% in the 1980s to more than 65% in the 2000s. Thus, the evidence suggests that the decrease in debt maturity has taken place mainly in public debt markets, rather than in the private debt markets.

The decrease in corporate debt maturity seems to be related to the disappearing dividends and new listings phenomena documented by Fama and French (2001, 2004). They find that the proportion of firms paying dividends falls dramatically in the 1980s and 1990s because of changing characteristics of publicly listed firms due to new listings by small firms with low profitability and strong growth opportunities. We find that firms that do not pay dividends use, on average, more short-term debt than firms that pay dividends. Additionally, we observe a decrease in debt maturity among dividend payers, but not among non-dividend payers. We find the decrease in debt maturity to be significant among the less profitable firms, but insignificant among the more profitable firms. We also find a much more pronounced decrease in debt

maturity among new listings (less than five years old) than among old listings (more than five years old). To further demonstrate the importance of the listing year, we define groups of firms according to their listing year grouped by decades. We find that the most recent listing groups have a lower median debt maturity than older listing groups. Moreover, within each listing group, firms do not display a negative time trend in debt maturity.

The shortening of firm's debt maturity seems to be also related to the strong increase in cash holdings of U.S. industrial firms documented by Bates, Kahle, and Stulz (2009). Harford, Klasa, and Maxwell (2011) find that liquidity risk is important to explain this increase in cash holdings. We find that firms with higher cash holdings use more short-term debt and that the decrease in debt maturity is only significant in the subsample of firms with higher cash holdings. There is not a significant trend in debt maturity among firms with lower cash holdings.

We next investigate whether the decrease in corporate debt maturity results from changes in firm characteristics and changes in the elasticities between debt maturity and firm characteristics, or, in alternative, by changes that are not explained by firm characteristics. We study whether allowing the intercepts and slopes of a regression model to change in the 1990s and 2000s helps to explain the cross section of corporate debt maturity. We find that the intercepts for the 1990s and 2000s are significantly lower than for the 1980s (i.e., the change in debt maturity is negative and strongly significant). This implies that most of the decrease in debt maturity in the 1990s and 2000s is explained by a shift in debt maturity that is unrelated to firm characteristics. There is some evidence of changes in slopes, but these changes have limited explanatory power to explain the evolution of debt maturity.

We estimate the expected level of debt maturity with firm characteristics using data from the earlier part of the sample and then apply the estimated coefficients to the samples of firm characteristics observed in subsequent years. We find that firms are using more short-term debt, irrespective of their characteristics. The models' expected debt maturity systematically overestimates the actual debt maturity and therefore fails to predict the decrease in debt maturity. When the average regression function for the 1970s is applied to the sample of firm characteristics from 1980 to 2008, the difference between the actual and the predicted debt maturity is negative and statistically significant in almost every year. This unexpected

component of debt maturity is more important than changing characteristics in explaining the decline in corporate debt maturity.

While the most common determinants of debt maturity cannot account for most of the increase in the use of short-term debt, the new listing effect is able to do it. There is no significant trend in debt maturity after accounting for firm listing year. The time trend coefficient in debt maturity increases from a statistically significant -0.376% to 0.139% when we control for the decade in which a firm became publicly listed. The importance of listing groups in explaining the time trend in debt maturity remains when we also control for the most common determinants of debt maturity choice.

These findings are not directly related to firm age. Our finding is not that newly listed firms use more short-term debt and then start using less short-term debt as they mature. Instead, we argue that a change in the sample of firms is responsible for the average decline in corporate debt maturity. There has been a fundamental change in the nature of publicly listed firms such that firms that have been listed over the last decades use more short-term debt. Thus, the decrease in debt maturity is concentrated in the part of the economy that has been able to access public equity markets because of greater financial market development and a decrease in the cost of equity (Fama and French (2004)).

Our findings suggest that the decrease in corporate debt maturity could have exacerbated the effects of the 2007-2008 financial crisis to the real economy as publicly listed firms were using more short-term debt and therefore were more exposed to more liquidation and refinancing risk. Indeed, the typical firm was exposed to substantial more to liquidity risk than historically at the awake of the recent financial crisis. There is, however, some evidence that firms extended debt maturity in the first half of the 2000s. This firms' behavior is consistent with the findings in Mian and Santos (2011) that firms engage in maturity structure management by extending the maturity of loans in normal times. This is particularly true for firms with high credit quality.

The remainder of the paper is organized as follows. Section 2 describes the data. Section 3 analyzes the evolution of debt maturity for subsamples of firms. Section 4 presents estimates of regression models of debt maturity and quantifies the effect of changes in firms characteristics on debt maturity. Section 5 studies the effect of new listings on the evolution of debt maturity. Section 6 presents evidence on debt maturity using new debt issues. Section 7 concludes.

2. Sample and Data Description

We draw our sample of U.S. firms from the Compustat Industrial Annual database. The sample period ranges from 1976 to 2008. We exclude financial firms (SIC codes 6000-6999) and utilities (SIC codes 4900-4999). Financial and utility firms are excluded because they tend to have significantly different capital structures due to regulation. American Depositary Receipts (ADRs) are also excluded. We drop any firm-year observations with negative book value of total assets. The final sample has a total of 97,215 observations from 12,938 unique firms.

2.1. Debt Maturity Structure

The debt maturity structure of the firms is defined as follows (Compustat data items are in parenthesis):

1. *Leverage*: The ratio of the book value of total debt (TD) over the book value of assets (AT).
2. *Debt maturity 1*. The ratio of the long-term debt (DLTT) over the book value of total debt (TD).
3. *Debt maturity 2*. The proportion of debt with a maturity over two years, defined by the ratio of the difference between the total long-term debt and the debt maturing in two years (DLTT – DD2) over total debt (TD).
4. *Debt maturity 3*. The proportion of debt with a maturity over three years, defined by the ratio of the difference between the total long-term debt and the debt maturing in two and three years (DLTT – DD2 – DD3) over total debt (TD).
5. *Debt maturity 4*. The proportion of debt with a maturity over four years, defined by the ratio of the difference between the total long-term debt and the debt maturing in two, three and four years (DLTT – DD2 – DD3 – DD4) over total debt (TD).
6. *Debt maturity 5*. The proportion of debt with a maturity over five years, defined by the ratio of the difference between the total long-term debt and the debt maturing in two, three, four and five years (DLTT – DD2 – DD3 – DD4 – DD5) over total debt (TD).

We drop observations for which debt maturity variables is less than 0% or greater than 100%. Following the literature on debt maturity (see for instance Barclay and Smith (1995)), we use the debt maturing in more than three years (*debt maturity 3*) as our main debt maturity variable.

Panel A of Table 1 provides summary statistics for all the debt variables. On average, total debt represents 27.3% of total assets while the median value is 24.2%. The debt due in more than one year represents, on average, 68.4% of total debt, while the debt that matures in more than three years is 43.8%. On average, only 28% of debt matures in more than five years. Overall, approximately half of the long-term debt matures before the fifth year.

2.2. Firm Characteristics

The explanatory variables that we use in our main specification in regression models follow the debt maturity literature (e.g., Barclay and Smith (1995), Guedes and Opler (1996), and Johnson (2003)) and are motivated by the existing theories, including agency costs, signaling and liquidity risk, asymmetric information, maturity matching, and taxes. The variables used are as follows (Compustat data items are in parenthesis):

1. *Size*: Firm size can be correlated with debt maturity for different reasons such as economies of scale and information asymmetries. We define size of a firm as its NYSE percentile, that is, the percent of NYSE firms that have the same or smaller market capitalization (CSHO × PRCC_F). This relative size measure is meant to neutralize any effects of the growth in typical firm size over time (Fama and French (2001)).
2. *Size squared*: The square of firm size. Johnson (2003) find a non linear relationship between debt maturity and firm size. The nonlinear relation is predicted by Diamond (1991) and implies that the square of firm size is expected to have a negative coefficient.
3. *Market-to-book*: This is a proxy for investment opportunities. Myers (1977) suggests that the underinvestment problem is more severe for firms with greater investment opportunities. We expect firms with more growth options to have more short-term debt, since this alleviates the underinvestment problem. Market-to-book is defined as the ratio of the market value of assets (AT+CSHO × PRCC_F - CEQ) over the book value of total assets (AT).

4. *Abnormal earnings*: Firms with better quality projects are more likely to issue short-term debt according to the signaling hypothesis (Flannery (1986), Kale and Noe (1990) and Diamond (1991, 1993)). Abnormal earnings are defined as the ratio of the difference between the income before extraordinary items adjusted for common stock (capital) and equivalents (IBADJ) for time t and t-1, over the market value of equity used to calculate earnings per share (PRCC_F × CSHPRI).
5. *Asset maturity*: We expect a positive relationship between asset maturity and debt maturity if the firm matches the maturity of its liabilities with the maturity of its assets (Myers (1977)). Following Stohs and Mauer (1996), Johnson (2004), and Billett, King, and Mauer (2007), assets maturity is measured as the ratio of property, plant and equipment (PPEGT) over depreciation and amortization (DP) times the proportion of property, plant and equipment in total assets (PPEGT/AT), plus the ratio of current assets (ACT) over the cost of goods sold (COGS) times the proportion of current assets in total assets (ACT/AT).
6. *Asset volatility*: We expect asset volatility to be negatively correlated with debt maturity. Firms with more assets volatility have higher probability of default and therefore might be screened out of the long-term debt market. This variable is defined as the standard deviation of stock return during the fiscal year times the market value of equity (CSHO × PRCC_F) divided by market value of assets (AT+CSHO × PRCC_F-CEQ).
7. *R&D*: Firms with more R&D expenses are also expected to hold more short-term debt according to the information asymmetry hypothesis. This is defined as the ratio of research and development expense (XRD) over the book value of total assets (AT).
8. *Term Spread*: The tax hypothesis suggests a positive correlation between the term spread and debt maturity (see Brick and Ravid (1985) and Barclay and Smith (1995) for a discussion). However, firms might also strategically issue debt of different maturities timing the market or in a way to manage accounting earnings (Faulkender (2005)). The term spread is measured as the difference between the month-end yield on the ten-year government bonds and the month-end yield on the one-year government bonds.

We report summary statistics for the explanatory variables in Panel B of Table 1. We winsorize variables at the top and bottom 1% levels. Firms, on average, have higher market value

of assets (about 80% more) than the book value of assets and show negative future abnormal earnings. On average, asset maturity is about nine years and asset volatility (annualized) is 30%. Panel B of Table 1 also presents summary statistics for other firm characteristics that we will use in the analysis. Table A.1 in the Appendix provides detailed definitions and the data sources for all variables used in analysis.

3. The Decrease in Debt Maturity and Firm Characteristics

Table 2 shows the evolution of the debt maturity structure and leverage of U.S. industrial (non-utility) firms from 1976 to 2008. We present the evolution of the percentage of debt maturing in more than three years (*debt maturity 3*). The aggregate ratio of the proportion of debt that matures in more than three years is 73% in 1976 and only 63% in 2008. The average ratio is 57% in 1976 and drops to 46% in 2008, with a minimum of 35% in 2000. The median ratio, reported in the next column, shows a similar pattern. Over the 1976-2000 period the median ratio drops from 64% to 21%, and then there is an increase up to 49% in 2008, but well below the levels of maturity in the beginning of the sample period. The recent increase in corporate debt maturity could be related to maturity structure management by firms. Mian and Santos (2011) find that firms, especially high-quality firms, extend the maturity of loans during normal times in anticipation to loan maturity.

The difference in trends between the aggregate and the average ratios is consistent with the smaller firms being responsible for this trend, since they account with the same weight as large firms in the average ratio, but with relatively less weight in the aggregate ratio. We further explore this asymmetry in the evolution of debt maturity between small and large firms in the next section.

Table 2 also reports the evolution of aggregate, mean and median ratio of the proportion of debt that matures in more than five years (*debt maturity 5*). We observe a stronger decrease in proportion of debt that matures in more than five years than the one for debt maturing in more than three years. The average ratio drops from 42% in 1976 to 22% in 2008, while the median drops even more from 44% in 1976 to nearly zero in 2008. The evidence suggests that the decline in debt maturity is stronger at longer maturities than at intermediate maturities. In the remaining of our analysis we use percentage of debt maturing in more than three years (*debt*

maturity 3) as our main dependent variable, following the majority of the papers on the determinants of debt maturity. However, the results would be even stronger using the percentage of debt maturing in more than five years.

We test whether there is a significant time trend in debt maturity variables. The estimated time trend coefficient and associated p-value of a regression of debt maturity variables on an intercept and a time trend are presented at the bottom of Table 2. We find a statistically significant downward trend in the proportion of debt maturing in more than three years or in more than five years. The coefficient for the median debt maturity is strongly statistically significant and indicates a decrease in the proportion of debt maturing in more than three years of 0.61% per year.

The average and median total leverage ratios reported in Table 2 also present a negative time trend coefficient but the magnitude of the decrease is substantially smaller than in debt maturity. Indeed, the leverage ratio seems to be quite stable during the sample period, suggesting that the continuing shift from long-term to short-term debt is not related to a structural change in the leverage ratios.

3.1. Firm Size

We examine the cross sectional variation of the time trend in debt maturity across firms of different sizes. We sort firms in three groups using the 20th and 50th percentiles of market capitalization for NYSE firms. A firm is classified as small firm if its market capitalization is below the 20th percentile, as medium-sized firm if its market capitalization is between the 20th and 50th percentiles, and as large firm if its market capitalization is above the median in each year. Following Fama and French (2001), we use NYSE percentiles to prevent the growing population of NASDAQ firms from changing the meaning of small, medium and large over the sample period. The 20th and 50th percentiles lead to a similar number of firms in the large and medium groups but many more firms in the small group.[1]

Panel A of Figure 1 shows the number of firms in each size group. While the number of firms in the large and medium groups is stable around 600 firms over the sample period, the number of firms in the small group increases from about 1,100 in 1976 to more than 2,500 in

[1] Untabulated results using real assets percentiles are similar to those using NYSE market capitalization.

1997. Table 3 reports five-year subperiod and full period averages of the median ratios of debt maturity ratio for the small, medium-sized and large firms groups (the initial and final subperiods have only four years). Panel B of Figure 1 shows the yearly evolution of debt maturity for the size groups.

Debt maturity is significantly lower for small firms than for medium-size and large firms. The full sample period average of the annual median percentage of debt maturing in more than three years for small firms is 26%, while for medium-sized and large firms is 63% and 69% respectively. The decrease in debt maturity is stronger for small firms. The percentage of debt maturing in more than three years drops from 53% in 1976-1979 to less than one-third of this figure in 1990-1994 and less than one-fifth in 2000-2004. There is some increase in the debt maturity of small firms in recent years, but the median debt maturity is 6% in 2008, which is well below the median in the late 1970s, of more than 50%. Large and medium-size firms also exhibit a decrease in debt maturity until the early 1990s, but much less pronounced than the one in small firms. The percentage of debt maturing in more than three years drops from 72% in 1976-1979 to 65% in 1990-1994 for large firms, but we observe an increase in debt maturity especially in the 2000s. Thus, there is no clear downward trend in debt maturity for large firms.

The final two columns of Table 3 present the estimated time trend coefficient and its p-value for the annual median debt maturity for each size group. The time trend coefficient is negative and significant only in the group of small firms. The coefficient, which is strongly statistically significant, indicates a decrease in debt maturity of 1.4% per year among smaller firms,.

The evidence on firm size is consistent with the information asymmetry hypothesis, but also with agency costs and signaling theories explaining the decrease in corporate debt maturity. In the next subsections we try to disentangle these hypotheses.

3.2. Agency Costs

Short-term debt alleviates the underinvestment problem (Myers (1977)) because it makes the renegotiation an easier process. These agency costs of debt are expected to be higher in firms with more leverage and stronger investment opportunities. Table 3 show the average debt maturity for high and low leverage firms, and firms with high and low market-to-book ratio of assets, which proxies for firm's growth options. A firm is classified as low if its below the median and as high if its above the median of a given firm characteristics in each year.

We do not find consistent evidence that the mitigation of the underinvestment problem helps to explain the declined in debt maturity. In fact, we find that more levered firms are the ones holding more long-term debt on average, but we only observe a negative trend in the debt maturity of less levered firms. Debt maturing in more than three years represents on average 59% of total debt in higher leverage firms and only 34% in lower leverage firms. Low leverage firms' average debt maturity ratio drops from 61% in 1976 to 36% in 2008. For high leverage firms this ratio has a much less pronounced decrease and its even higher at 75% in the 2005-2008 period than at the beginning of the sample period (63%).

The results from splitting the sample according to growth options are also inconsistent with the agency costs of debt hypothesis. Although high market-to-book firms show a higher proportion of long-term debt (50% on average) than low market-to-book firms (38%), any of the groups presents as significant trend in debt maturity. We consider CAPEX and asset growth as alternatives proxies of growth opportunities. We find no significant trends in debt maturity in any of the groups based on these alternative proxies of growth opportunities. For example in the case of asset growth, we find that debt maturity is on average 42% for low asset growth firms and 47% for high asset growth firms and the trend is even more pronounced in the low asset growth group than in the high asset growth group.

Recent research finds a link between corporate governance and the structure of debt maturity. Harford, Li, and Zhao (2006) argue that firms with better corporate governance, namely firms with more independent boards, hold more short-term debt. Datta, Iskandar-Datta, and Raman (2005) and Brockman, Martin, and Unlu (2009) find evidence that managerial compensation affects the choice of corporate debt maturity. Firms with higher managerial ownership tend to use more short-term debt. This is consistent with the notion that when the interests of managers and shareholders are not properly aligned, managers use more long-term debt than they are supposed to.

We test if managerial agency costs can explain the trend in debt maturity by looking at groups of firms based on corporate governance characteristics. Table 3 reports the trend in debt maturity for firms with high and low governance index (Gompers, Ishii, and Metric (2003)), as a measure of managerial entrenchment. The governance index is a cumulative index of 24 antitakeover provisions obtained from RiskMetrics. The governance index is available from 1990

to 2008. We split the sample in high (above the yearly median) and low (below the yearly median) governance index. On the cross section, we do not see a significant difference in debt maturity between the low and high governance index groups (64% versus 67%). Moreover, we find no clear difference in the debt maturity trends across these two groups. The evidence does not support that less shareholder friendly firms (low governance index) drive down debt maturity.

We find similar results using managerial ownership to construct groups of firms. We construct a measure of managerial ownership using data from Execucomp. Managerial ownership data is only available since 1992, therefore our sample period is restricted to 1992-2008. The managerial ownership measure is defined as the percentage of shares held by the five highest paid executives in the firm. We split the sample into high and low managerial ownership firms using the yearly median. On the cross section, we find that firms with more managerial ownership, therefore where the interests between managers and shareholders are better aligned, hold less long-term debt. This result is consistent with the findings in Datta, Iskandar-Datta, and Raman (2005). However, we do not observe a difference in the evolution of debt maturity between the two groups.[2]

Finally, we use board independence as a measure of governance quality. We construct a board independence measure using data from RiskMetrics, defined as the percentage of independent directors in the board. This data is only available since 1996, therefore our sample is restricted to the period between 1996 and 2008. We define two groups. A firms is assigned to the high (low) board independence group if its percentage of independent directors is above (below) the yearly median. Consistent with the results on the governance index and managerial ownership, we do not find a significant trend in any of the groups. There is no significant difference between the high and low board independence groups in terms of debt maturity .

In summary, we do not find evidence that agency costs explain the decline in corporate debt maturity over time. This is true for both agency costs of debt and managerial agency costs. A caveat is the fact that governance measures are only available for a sub-sample of large firms (essentially S&P 1,500 firms) and years (1990-2008), restricting our sample in both dimensions,

[2] Untabulated results using CEO ownership are similar to those using managerial ownership.

which limits our analysis. This explains why we do not find a clear decrease in debt maturity in any of the groups when using governance measures.

3.3. Asymmetric Information

The asymmetric information hypothesis predicts firms with greater information asymmetry to have less long-term debt. Flannery (1986) and Diamond (1991) both suggest that debt maturity is reduced in the presence of information asymmetry. We investigate if firms with higher information asymmetry drive the decrease in debt maturity. So far, we find that smaller firms display a stronger decline in debt maturity, which seems to support the information asymmetry hypothesis as firm size is negatively correlated with information asymmetry. We further test this hypothesis using alternative proxies including tangibility, R&D expenditures, credit rating, S&P 500 index membership, and NYSE listing.

We first use tangibility as a proxy for the degree of information asymmetry between insiders and outside investors. We find that firms with a lower proportion of tangible assets (PPE) use more short-term debt, and contribute more to the downward trend in debt maturity than high PPE firms. The debt maturity of low PPE firms falls from 54% in 1976-1979 to 10% in 2000-2004 and 26% in 2005-2008. In contrast, the drop in the debt maturity of high PPE firms is less pronounced and is statistically insignificant.

Table 3 also shows the evolution in debt maturity for high and low R&D firms. We classify high (low) R&D firms as the ones above (below) the yearly 75th percentile of the R&D-to-assets ratio. The change in debt maturity structure is dramatically different between these two groups over the 1976-2008 period. In 1976-1979, there is no significant difference in debt maturity between the two groups. However, the high R&D group experiences a striking decrease in debt maturity in the following years. The debt maturity falls from 61% in 1976-1979 to 5% in 2005-2008 for more R&D-intensive firms, while for less R&D-intensive firms debt maturity does not drop over the same period. Thus, R&D-intensive firms are using much more short-term debt than they used to, which is consistent with the information asymmetry hypothesis.

Firms with no credit rating are expected to have a higher degree of information asymmetry. We split the sample of non-missing observations between firms with and without rating. Rating information is only available since 1986. We expect firms with a credit rating to have higher levels of long-term debt, due to less information asymmetry. Indeed, the average debt maturity is

more than three times bigger for firms with rating (77%) than for firms without rating (19%). In addition, we find a positive trend in debt maturity for firms with rating, while for firms with no rating, we find a negative and significant trend.

Results in Table 3 suggest that the decrease in debt maturity is mainly driven by firms not listed in the NYSE and firms that are not part of the S&P 500 index. We find a negative and significant trend in debt maturity only for non-NYSE firms and non-S&P500 firms. We also find that NYSE and S&P 500 firms have more than 65% of debt maturing in more than three years, while non-NYSE and non-S&P 500 use much less long-term debt.

These findings are also consistent when using more dynamic proxies or market microstructure measures of adverse selection including institutional ownership, analyst coverage, dispersion of analyst forecasts, volatility, illiquidity (Amihud (2002)), probability of informed trading (Easley, Kiefer, and O'Hara (1996)), and effective bid-ask spread (Roll (1984)). We use these variables to classify firms into low and high information asymmetry using the yearly median as a breakpoint.[3]

Table 3 shows that the drop in debt maturity is explained by firms with high information asymmetry as proxied by low institutional ownership and analyst coverage and high dispersion of analyst forecasts and (asset) volatility. There is a negative and significant trend in debt maturity in the groups of high information asymmetry, while there is no trend in the groups of low information asymmetry.

Stocks' illiquidity is expected to be positively correlated with information asymmetry: more illiquid stocks are traded less frequently and by a smaller number of investors, which might be both a cause and an effect of the level of information available for the firm. We split our sample in high and low illiquidity firms using Amihud's illiquidity measure, PIN and effective spread using the yearly median. Table 3 also shows that the drop in debt maturity is explained by firms with high illiquidity, PIN, and effective spread, which is consistent with the asymmetric information hypothesis. On the cross section, we find a significant difference between the average debt maturity between the two groups: the debt maturity of the more illiquid firms is

[3] In untabulated results we obtain similar findings using alternative measures of adverse measures, including Amivest liquidity ratio (Cooper, Groth, and Avera (1985)) and the reversal coefficient (gamma) of Pastor and Stambaugh (2003)). The Amivest liquidity ratio, gamma measure, Amihud illiquidity, and effective bid-ask spread are obtained from Joel Hasbrouck's website. The estimates of PIN are obtained from Soeren Hvidkjaer's website.

33%, while more liquid firms have a debt maturity of 63% according to the Amihud illiquidity measure.

The information asymmetry hypothesis predicts that firms with more information asymmetry use more short-term debt. We find consistent cross sectional variation with this hypothesis. Moreover, the trend in debt maturity for groups of firms with high information asymmetry seems to suggest that these firms play a key role in explaining the decline in corporate debt maturity.

3.4. Signaling and Liquidity Risk

We first test the signaling hypothesis using abnormal earnings as proxy. Table 3 report the average debt maturity per year for the groups of firms with high and low abnormal earnings. According to the signaling hypothesis of debt maturity, firms that generate higher abnormal earnings because they have better projects, are expected to issue short-term debt as a signal of good quality (Flannery (1986), and Kale and Noe (1990)). We do not find cross sectional variation that is consistent with this hypothesis. Debt maturity averages 42% in the group of low abnormal earnings and 47% in the group of high abnormal earnings. If signaling explains the decline in debt maturity, we should see that debt maturity of firms with high abnormal earnings should decrease more than the debt maturity of firms with low abnormal earnings. We do not observe this pattern. There is a similar negative trend in both groups and the trend is statistically significant in both groups.

Credit quality gives us an additional way to test the signaling hypothesis. We do not observe a significant in the use of short-term, debt by firms with investment grade credit ratings. Additionally, firms with speculative grade credit rating seem to be using more long-term debt as we observer positive and significant trend in debt maturity. In short, patterns in debt maturity across credit quality groups do not seem to be consistent with a signaling story explaining the decrease in debt maturity.

3.5. Dividends, Profitability, and Cash

Table 3 also shows the variation of debt maturity over time with respect to other firm characteristics. We first investigate whether the decrease in debt maturity is related to the disappearing dividends effect documented by Fama and French (2001). Table 3 show the results for non-dividend and dividend paying firms. Firms that do not pay dividends are more likely to

be financially constrained and less likely to be able to issue long-term debt. Non-dividend payers have on average lower debt maturity relative to dividend-paying firms (29% and 63%, respectively). There is a much more pronounced decrease in debt maturity among non-dividend payers than among dividend payers. The debt maturity of non-dividend payers debt falls from 47% in 1976-1979 to 19% in 2000-2004, while the debt maturity of dividend payers falls only from 67% to 60%.

Profitability also seems to be related to our findings. When we split the sample into firms with positive and negative net earnings, we observe that firms with accounting losses have a significantly lower debt maturity than firms with accounting profits. Again, there is a clear difference in the observed evolution of debt maturity between the two groups based on profitability. The trend in debt maturity for negative net income firms is negative and significant, while for positive net income firms is negative but insignificant.[4]

The shortening of firm's debt maturity seems to be also related to the strong increase in cash holdings of U.S. industrial firms documented by Bates, Kahle, and Stulz (2009). We find that firms with higher cash holdings use more short-term debt than firms with lower cash holdings. Moreover, the trend in debt maturity is negative and significant in the subsample of firms with higher cash holdings, while there is not a significant trend in the subsample firms with lower cash holdings.

Overall, we conclude that the disappearing dividends, profitability decline, and cash increase phenomena documented in the literature seems to be associated with the decline in corporate debt maturity observed for U.S. industrial firms.

3.6. Listing Vintage

Fama and French (2004) document a surge in new listings in the 1980s and 1990s and a change in the characteristics of new listings. They argue that a change in the characteristics of new listings were due to a decline in the cost of equity that allowed firms with more distant expected cash flows to issue public equity. Brown and Kapadia (2007) find that the increase in idiosyncratic risk in the U.S. stock market is driven by newly listed firms.

[4] Untabulated results using return on assets or return on equity to form the groups of high and low profitability are similar.

Panel A of Figure 2 shows the number of new firms listed on major U.S. stock markets (NYSE, AMEX, and Nasdaq) in our sample in the 1976-2008 period. We define a new list as the first appearance of a firm in CRSP. We can see that new lists surge from about 100 per year in late 1990s to 300 in 1980. Over the 1980-2000 period, there is no single year with less than 200 new listings. After 2000 there is a dramatic decline in the number of new listings to less than 100 per year and this number has been always below 200 until 2008. This surge in the number of new listings in the 1980s and 1990s is consistent with the evidence in Fama and French (2004).[5]

We now test if these new listings can explain the decrease in the corporate debt maturity. We define listing groups according to a firm's listing date. The first group includes all the firms listed before 1980. The second group includes all the firms listed between 1980 and 1989, the third group between 1990 and 1999, and the final group all the firms listed after 1999. We find that firms in the most recent listing groups use more short-term debt. Within each listing group there is no negative trend in debt maturity. Table 3 reports five-year subperiod and full period averages of the median ratios of debt maturity ratio by listing group. Panel B of Figure 2 shows the yearly evolution of debt maturity for the listing groups.

The average debt maturity of firms in the pre-1980 listing group does not display a significant time trend, while the other listing groups display a positive and significant trend. This evidence is consistent with the downward in debt maturity trend being mainly generated by the decrease in the use of long-term debt ratio by firms in the newer listing groups, or in other words, by the new firms entering the sample of publicly traded firms.

Finally, we investigate whether the listing groups findings are directly related to firm age. We measure firm age using the CRSP listing date and classify firms as new list if they have listed in the prior five year period, and as old list otherwise. On the cross-section, we find that new lists have lower debt maturity. However, we can observe a decrease in debt maturity both in new and old lists. The decline is stronger in new lists but there is also a significant negative trend in the old lists group. We conclude the decline in debt maturity is not fully explained by a particular group of firms in terms of firm age. Our finding is not that newly listed firms use more

[5] The number of new listed firms Panel A of Figure 2 is slightly different from Fama and French (2004) because our sample only includes firms included in Compustat.

short-term debt and then start using less short-term debt as they mature. Instead, we argue that a change in the sample of firms is responsible for the average decline in corporate debt maturity.

To confirm that a change in the composition of firms is a key factor in explaining the trend in debt maturity, we estimate the time trend coefficient of debt maturity for each firm in our sample with at least three firm-year observations. If the sample composition were to play an important role we expect to find that the time trend coefficient is insignificant for the majority of the firms in our sample. Indeed, we find that for 75% of the firms (6,724 firms out of a total of 8,950 firms) in the sample the time trend coefficient is insignificant. Furthermore, there are 9% of firms with a positive and significant time trend in debt maturity and only 16% of firms with a negative and significant time trend coefficient. These findings suggest that a change in the sample of firms explains a large part of the decrease in debt maturity since we find for a large majority firms an insignificant trend.

3.7. Industry Structure

A natural question about the newly public companies is their effect on the overall industry composition of the U.S. stock market. In this section we examine the industry composition and the evolution of debt maturity over time by industry. The industry breakdown is based on 49 industry groups classification of Fama and French (1997). Table 4 reports five-year subperiod and full period averages of the median ratios of debt maturity by industry, as well as time trend coefficients and associated p-values. The table also contains the market capitalization weight and number of firms in each industry at the beginning and at the end of the sample period (1976 and 2008).

If typically riskier industries have increased in size because of newly listed companies, this could cause a decrease in debt maturity. Table 4 shows that the industry composition of firms has changed substantially over the sample period. Industries such as Pharmaceutical Products, Retail, Electronic Equipment and Medical Equipment have experienced the largest increase in market capitalization weight. Pharmaceutical Products and Medical Equipment are also among the industries that had the largest increase in the number of firms. Industries with the largest decrease in market capitalization weight include Chemicals, Automobiles and Trucks and Petroleum and Natural Gas.

The industries with more pronounced decrease in debt maturity we can find Medical Equipment, Computer Software, Electronic Equipment, Pharmaceutical Products, Computers, and Business Services. Only the Petroleum and Natural Gas industry has a positive and significant trend in debt maturity. Other industries with a positive trend coefficient (although insignificant) are Construction, Food Products, Communication or Aircraft.

We can see that high tech industries are over-represented among the industries with more pronounced decrease in debt maturity. We calculate the yearly average debt maturity for firms in high tech and low tech industry groups using the Loughran and Ritter (2004) classifications scheme. Consistent with the idea that high tech firms experience higher information symmetry, we find (in untabulated results) that debt maturing in less than three years represents 49% of the total debt for firms in the high tech industries, but only 24% for firms in the low tech industries. Although both groups experience a downward trend in debt maturity, the trend is much more pronounced for the high technology group of firms.

Our industry results show some important changes in industry composition that play a role in explaining the decrease in debt maturity. We find among the industries with stronger decline in maturity, industries with a stronger increase in market capitalization weight (e.g., Pharmaceutical Products). However, industry effects are not the whole story as we find a large number of industries with a negative and significant time trend in debt maturity. There are 31 industries with negative time trend coefficient out of which 23 are statistically significant. If industry effects were to fully explain the decrease in debt maturity we would not find a large number of industries with negative trend.

To gain additional understanding of the importance of industry effects, we compute the average debt maturity keeping the industry weights constant at their 1976 level. Figure 3 shows actual median debt maturity by year and the value-weighted average, using 1976 market capitalization weights, of the median debt maturity across industries in each year. The lines start to diverge in 1985 with the actual debt maturity decreasing significantly more than the average debt maturity using 1976 weights. The difference increases to more than 20 percentage points in 2000. This suggests that a change in the composition of firms within an industry rather than industry weights is a more important effect.

4. Did the Determinants of Debt Maturity Change?

4.1. Regression Estimates

In this section, we make use of the existing models on the determinants of corporate debt maturity to analyze if the decrease in debt maturity can be attributed to a change in firm characteristics or to a change in the sensitivities of debt maturity to its determinants. We first address the question whether firm characteristics have changed over time by running a set of regressions that relate debt maturity to firm characteristics. We use the percentage of debt maturing in more than three years (*debt maturity 3*) as dependent variable in all regression models. The explanatory variables are taken from the literature on debt maturity (e.g., Barclay and Smith (1995), and Johnson (2003)).

Table 5 shows panel regressions of the determinants of debt maturity. Column (1) shows the estimates of an OLS regression. The coefficients of all the variables have the predicted sign, with the exception of abnormal earnings and term spread. As expected, the coefficient of firm size is positive and significant, while the coefficient of firm size squared is negative and significant. These estimates are consistent with the non-linear relation between debt maturity and credit quality predicted by Diamond (1991). The coefficient of market-to-book is negative and significant, consistent with the notion that firms with more growth opportunities use more short-term debt to mitigate the agency costs of debt. The coefficient on abnormal earnings is positive and significant, which does not support the signaling hypothesis. There is evidence that firms match the maturities of their assets and liabilities as the asset maturity coefficient is positive and significant. As expected, the asset volatility coefficient is negative and significant. Consistent with the results in Johnson (2003) and others, leverage is positive and significant, indicating that debt maturity increases with leverage. The R&D coefficient is negative and significant, indicating that R&D-intensive firms use more short-term debt, which is consistent with the asymmetric information hypothesis. Although the term spread is not positive as expected, the sign of this variable is consistent with the previous findings by Barclay and Smith (1995) and Datta, Iskandar-Datta, and Raman (2005).

Column (2) re-estimates the specification in column (1) including year and industry dummies. The coefficient results are similar to column (1) except for term spread due to the inclusion of

year dummies.[6] Column (3) re-estimates column (1) including firm fixed effects. The results are similar to column (1) except for asset maturity, which is not statistically significant in this specification.

Columns (4)-(6) present the estimates that replicate the specifications in columns (1)-(3), but including a time trend. This allows to test whether there is a time trend in debt maturity after controlling for changes in firm characteristics. We find a negative and significant time trend coefficient in all specifications. The time trend coefficient in column (4) indicates a decrease in debt maturity of 0.12% per year. The magnitude of the time trend coefficient is stronger when we include industry and year dummies or firm fixed effects in columns (5) and (6). Additionally, the coefficients of the determinants of debt maturity are barely affected by the inclusion of the time trend. Thus, the results are consistent with the changes in determinants not explaining the decrease in corporate debt maturity.

We further investigate if there is instead a change in the sensitivities of debt maturity to these variables. To account for this possibility we estimate cross-sectional regressions using the Fama-MacBeth procedure for two different sub-periods: 1976-1989 and 1990-2008. Columns (7) and (8) in Table 5 show the results. Column (7) presents the estimates for the first sub-period and column (8) the estimates for the most recent sub-period. The results in all specifications are consistent with the previous OLS and fixed effects regressions, and all the variables have the expected impact on debt maturity with the exception of abnormal earnings and term spread. All the coefficients maintain the same sign across the sub-periods suggesting that there are not dramatic changes in the sensitivities of debt maturity to its determinants.

4.2. Robustness

In this section we investigate the robustness of the regression estimates in Table 5 in several ways. We use the OLS specification in column (4) of Table 5 including a time trend coefficient as our main specification.

Since debt maturity is bounded at zero and one, we estimate the model using the logarithm of debt maturity as dependent variable and a Tobit model of debt maturity. The results in column (1) and (2) of Table 6 are consistent with the ones in Table 5. Column (3) presents the estimates of a

[6] Term spread differs across firms in a given year because of differences in fiscal year-end.

specification that uses yearly changes in the dependent and independent variables. This approach allows us to eliminate the impact of time-invariant unobserved firm characteristics in debt maturity. The results are also consistent with the ones in Table 5. More important, the time trend coefficient is negative and significant in all models.

Columns (4) and (5) present estimates of the debt maturity regression including additional explanatory variables. The model in column (4) includes additional macroeconomic and firm characteristics as explanatory variables. Greenwood, Hanson, and Stein (2010) argue that there is a substitution effect between corporate debt and government debt maturities and suggest that the time variation in the maturity of corporate debt arises because firms act as macro liquidity providers, issuing more long-term debt when the government issues more short-term debt and vice-versa. In column (4) we add Greenwood, Hanson, and Stein (2010) variable of long-term government share, defined as the fraction of government debt with a maturity of one year or more. We expect this variable to have a negative correlation with our dependent variable due to the substitution effect between government and corporate debt maturity. We also add the short-term rate as additional macro variable, as the firm might react to changes in short-term interest rates. The coefficient of government share is negative and statistically significant, which is consistent with the predictions and results of Greenwood, Hanson, and Stein (2010). The short-term rate coefficient is positive and significant, which indicates that firms use more short-term debt when it is cheaper to use it. In untabulated results, we check that other macroeconomic factors, including poor macroeconomic conditions (Erel, Julio, Kim, and Weisbach (2011)) and high aggregate risk (Acharya, Almeida, and Campello (2011)), do not explain the decrease in corporate debt maturity.

In the model in column (4) of Table 6, we also introduce several additional explanatory variables that are used less often in the debt maturity literature: rating dummy, profitability (measured by return on assets), taxes, cash (ratio of cash and equivalents to total assets), tangibility (ratio of net property, plant, and equipment, PPE, to assets), capital expenditures (ratio of capital expenditures to assets) and a dividend dummy (takes the value of one if a firms pays common dividends). Rating dummy, taxes, profitability, cash, tangibility, and dividend dummy coefficients are positive and significant, while the capital expenditures coefficient is negative and significant.

More important to our analysis, the coefficient of the time trend remains negative and significant for all the models that include additional macro-economic variables and firm characteristics, suggesting that these variables do not explain the time variation of corporate debt maturity. If anything, the magnitude of the time trend coefficient is now stronger than in column (4) of Table 5. The time trend coefficient in column (4) of Table 6 indicates a decrease in debt maturity of 0.23% per year.

The model in column (5) of Table 6 includes additional proxies for information asymmetry as explanatory variables. We add institutional ownership, analyst coverage and Amihud illiquidity as explanatory variables. The institutional ownership coefficient is positive and significant and the Amihud illiquidity coefficient is negative and significant, which is consistent with firms with higher information asymmetry using less long-term debt. Analyst coverage is insignificantly related to debt maturity. The trend coefficient is also negative and significant in this model. Thus, we conclude that changes in these additional firm characteristics do not explain the decrease in debt maturity.

The model in column (6) of Table 6 replicates the model in column (1) of Table 5, but including two dummy variables that allow the intercept to shift in the 1990s and the 2000s with respect to the 1980s (i.e., 1976-1989). This enables us to test if the intercepts of the model change over time in a significant way and also to tell if the changes in debt maturity ratio are explained by the changes in the variables included in the regression model. Both dummies are negative and highly significant, which is consistent with the changes in firm variables in the regression model not explaining the decrease in debt maturity. The coefficient of the 1990s is greater in absolute terms than the coefficient of the 2000s, suggesting that during the 1990s there is a bigger part of the debt maturity decrease that is not explained by the model variables.

The model in column (7) of Table 6 replicates the model in column (6), but we interact the 1990s and 2000s dummies with the explanatory variables allowing the slopes of these variables to change over time. The interaction terms with the 1990s and 2000s periods are reported in the second and third columns of this specification. There are significant changes in the slopes of the coefficient for size, abnormal earnings, asset volatility, leverage, and R&D. However, only the change in the slope of abnormal earnings explains the decrease in debt maturity in this period as its sensitivity drops during the 1990s. Nevertheless, the model is not able to explain the decrease

in debt maturity since the intercepts are still negative and highly statistically significant. The improvement in the R-square from model in column (6) to this model that allow for changes in slopes is also small (less than one percentage point).

Finally, we address the concern that the choice of leverage and debt maturity are likely to be simultaneous. Following Johnson (2003), Billett, King, and Mauer (2007), and others, we estimate a system that models leverage and debt maturity as jointly endogenous using three-stage least squares (3SLS). In untabulated results, we obtain similar estimates to those obtained by OLS. In particular, the magnitude of the time trend coefficient is not affected.

4.3. Predicted and Unexpected Debt Maturity

The previous sections show that changes in firm characteristics are not the major reason why debt maturity decreases. This section quantifies the effect of changes in firm characteristics in debt maturity and the (unexpected) component of debt maturity that it is not explained by firm characteristics. We first estimate Fama-MacBeth regressions for the 1976-1979 period using the same specification of columns (7) and (8) of Table 5. The coefficients are the average coefficients from the annual cross-sectional regressions and they are reported in the legend of Table 7. We then compute how the actual debt maturity over the 1980-2008 period differs from the debt maturity predicted by the model. Since the debt maturity associated with firm characteristics is fixed at their base period values, variation in the predicted debt maturity after 1980 is due to changing characteristics of sample firms. The difference between predicted and actual debt maturity for a given year measures the change in debt maturity that it is not related to changes in firm characteristics.[7]

Table 7 shows the results for all firms but also for the subsamples of small, medium-size and large firms. For all firms, the first column reports the actual (average) debt maturity for the whole sample and the second column the predicted debt maturity. The third and fourth columns report the difference between actual and predicted debt maturity and the t-statistic for the difference. When the average regression function for 1976-1979 is applied to the sample of firm

[7] In untabulated results, we obtain similar findings if we add to the model the additional control variables included in Table 6. We also obtain similar findings if we estimate the Fama-MacBeth regressions in the 1976-1984 or 1976-1989 periods.

characteristics for 1990, the expected debt maturity is 53%. The actual debt maturity for 1980 is also 53%.

The difference between the actual and expected debt maturity increases over the 1980s and 1990s. This difference can be interpreted as the unexpected reduction in debt maturity or the reduction in debt maturity that it is not explained by changes in firm characteristics. The model consistently overpredicts debt maturity in the 1980-2008 period (the only exceptions are in 2006 and 2007 where the difference is statistically insignificant). The highest differences between the actual and predicted long-term debt ratio is during the early 1900s (1990-1995) when the model under-predicts debt maturity by nearly 12 percentage points. The difference between actual and predicted debt maturity is smaller in magnitude after 2002. In 2008, the actual debt maturity is 46% and the predicted debt maturity is 51%. Over the 1980-2008 period, predicted debt maturity has slightly increased by 2 percentage point. We conclude that changes in firm characteristics do not explain the decrease in debt maturity as predicted debt maturity has remained quite stable, while actual debt maturity has decreased significantly.

The next columns of Table 7 examine the differences between actual and predicted debt maturity for the subsamples of small, medium-size and large firms. As expected, the model performs particularly poorly in the subsample of small firms. The difference between the actual and the predicted debt maturity ratio increases to more tha 14 percentage points in early 1990s and the model systematically over-predicts debt maturity in the 1980-2008 period. In 2008, the actual debt maturity is 31% and the predicted debt maturity is 43%, which is similar to the predicted debt maturity in 1990 of 45%. Thus, we again conclude the model and changes in firm characteristics do not explain the observed decrease in the debt maturity of small firms.

Finally, we can observe that the model performs much better in the subsamples of medium-size and, especially, large firms. The differences between actual and predicted debt maturity for large firms are negative and only statistically significant in 1981-1982, 1984, and 1988-1995 but the magnitude of the differences is much smaller than in the subsample of small firms. In the most recent period, particularly after 2003, the model even under-predicts debt maturity in medium-size and large firms. Over the whole sample period, we can see that the effect of changes in firm characteristics is also small as predicted debt maturity for large firms is 65% in 1990 and 64% in 2008.

5. Effect of New Listings

We have found that new firms entering the sample of publicly traded firms in the 1980s and 1990s play an important in explaining the decrease in corporate debt maturity. The average level of debt maturity is higher for the most recent listing groups, and none of the listing groups have a statistically significant negative time trend.

To demonstrate the importance of listing groups in explaining the time trend in debt maturity, we estimate regressions at the firm level with and without dummy variables for each ten-year listing group. The first listing group includes all the firms listed before 1980. The second listing group includes all the firms listed between 1980 and 1989, the third listing group includes firms listed between 1990 and 1999, and the final listing group includes firms listed after 1999. The dummy variables allow each listing group to have different average debt maturity, while constraining the time trend to be the same across groups. The results of this analysis are reported in Table 8.[8]

The model in column (1) of Table 8 shows that the time trend coefficient across all firms without including the listing groups dummy variables. The time trend coefficient is negative and significant. The estimated coefficient implies that average percentage of debt maturing in more than three years decreased 0.38% per year between 1976 and 2008. Column (2) shows that the time trend coefficient turns positive (and significant) when the listing group dummy variables are included. As expected, the listing group dummy variables coefficients are decreasing through time and are statistically significant. The pre-1980 listing group dummy coefficient is 0.520, while the 1980-1989 listing group dummy variable coefficient is 0.353. The difference between these two coefficients is statistically significant. The 1990-1999 listing group dummy coefficient is even lower at 0.328 and the 2000-2008 listing group dummy coefficient is 0.311.

We have found that firm characteristics are important to explain debt maturity, but they are not able to explain the time evolution in debt maturity. The time trend coefficient is negative and significant (-0.116 with a t-statistic of -6.01) in a OLS regression of debt maturity on firm characteristics (see column (4) of Table 5). Column (3) shows results including listing group dummy variables as well as firm characteristics. The time trend coefficient is statistically

[8] In untabulated results, we obtain similar findings using five-year listing groups.

insignificant. The results also show that the listing group dummy variables are decreasing with exception of the 2000-2008 listing group dummy variable. These results show that the new listing effect is necessary and sufficient to explain the negative trend in corporate debt maturity, whereas firm characteristics are insufficient to explain it.

One could argue that the new listing effect could be just capturing that younger firms use more short-term debt than older firms and as they grow older, their debt maturity will increase. Our finding that there is no consistent increase in debt maturity by listing group does not support this hypothesis. This suggests that the trend in debt maturity is not solely the result of a decline in the average age of firms going public. To more directly examine the role of firm age, we run a regression with firm characteristics but including firm age as additional explanatory variable. Column (4) report the results. There is a positive relation between debt maturity and firm age as shown by the positive and significant coefficient. However, accounting for firm age does not have any effect on the magnitude of the time trend in debt maturity. The time trend coefficient is negative and significant at -0.131 (t-statistic is -6.66).

We next run a regression with firm characteristics and age but also including the listing group dummy variables as explanatory variables. Column (5) shows the results that support that the new listing effect on debt maturity is not affected by firm age while driving out the effect of firm age on debt maturity (the coefficient on firm age becomes insignificant). The time trend coefficient is also insignificant in column (5).

The interpretation of these results is that the variation in firm age not correlated with its listing vintage is not important in explaining debt maturity. Although firms are listing earlier in their life cycle, this is not sufficient to explain the time trend in debt maturity; the listing vintage is the crucial effect. A young firm that lists in the 1980s and 1990s uses on average more short-term debt than a young firm (of comparable size, growth opportunities, and other characteristics) that lists in the 1970s. Our findings suggest that the decrease in debt maturity seems to be concentrated in the part of the economy that has been able to access public equity markets because of greater financial market development in the 1980s and 1990s (Rajan and Zingales (2003) and Fama and French (2004)).

6. Evidence from New Debt Issues

In this section, we examine the evolution of the maturity of new debt issues—an incremental approach. Guedes and Opler (1996) argue that some issues about the study of the debt maturity choice could be better answered using an incremental approach versus a balance sheet approach. This setting allows us to take the view of a prospective creditor who analyzes the firm characteristics that will determine the maturity of new lending. We study the maturity of new corporate bond issues and syndicated loans.

We obtain new corporate bond issues from the Mergent Fixed Income Securities Database (FISD). Our sample consists of bond issues by (non-utility) industrial firms with Compustat identifiers. The sample includes 8,283 issues from 1,901 unique firms over the period 1976 to 2008.

Panel A of Table 9 shows the evolution of the initial maturity of new bond issues from 1976 to 2008. The average initial maturity is 15.2 years and the median is 13.4 years. Over time, there is a dramatic decrease in the maturity of new bond issues. The median maturity drops from 25 years in 1976 to only nine years in 2008, with a lowest of seven years in 2000. The time trend coefficients of the average and median initial maturity are negative and strongly significant. The median debt maturity time trend coefficient corresponds to a yearly decrease of 0.48%. Thus, there is strong evidence of an economically important decrease in the debt maturity of new public debt issues.

We have found that the decrease in debt maturity is explained by smaller and younger firms, or more generally by firms with higher information asymmetry. Using the sample of new bond issues, we examine the composition of the sample of bond issuers in terms of their size, age, and credit rating. We expect to find that the importance of small and new firms have increased in public debt markets. We also expect to find an increase in the importance of unrated firms and firms with speculative grade credit ratings versus firms with investment grade ratings in new bond issues.

Panel A of Table 9 shows the percent of issues by firm size group based on the NYSE market capitalization breakpoints in the our sample of Compustat firms. It also shows the percent of issues by firm age (new versus old lists) and credit rating (unrated, speculative grade and investment grade). There is an increase in the relative importance of small firms, new firms,

unrated firms and firms with speculative grade rating in new bond issues. Small firms represent 15% of the issues in 2005-2008, while they represent only 9% of the issues in 1976-1979. The weight of new firms among issues increased from 5% in the earlier subperiod to nearly 30% in 1995-1999. There is a decrease in the relative importance of new firms in the 2000s (but to figures above the ones from the beginning of the sample) that may explain the increase in corporate debt maturity after 2002. Finally, there is also an increase in the relative importance of unrated firms and firms with speculative grade ratings. Unrated firms represent 18% of issues in recent times versus only 5% in early 1980s. The percent of firms with speculative grade ratings increased from less than 30% in the 1980s to more than 40% in the 1990s, while the percent of firms with investment grade rating dropped from almost 70% to less than 50% over the same period of time. We conclude that a change in the composition of public debt issues explains the decrease in debt maturity, which is consistent with our previous findings.

Our data on private debt are from Loan Pricing Corporation's Dealscan, which contains issuance-level information on syndicated bank loans. Each loan can have multiple facilities, each of which contains different characteristics. Our sample consists of loan facilities by (non-utility) industrial firms with Compustat identifiers.

Panel B of Table 9 shows the evolution of the initial maturity of new syndicated loans from 1976 to 2008. The sample includes 113,131 loan facilities from 5,115 unique firms over the period 1987 to 2008. The average and median initial maturity is 3.9 years. Over time, there is cyclical variation in the maturity of new loans but there is no evidence of a time trend.[9] The time trend coefficients are statistically insignificant. Using the sample of new syndicated loans, we examine the composition of the sample of borrowers in terms of their size, age, and credit rating. There is some evidence that the relative importance of small and young firms increased in the 1990s.

Overall, the time series of the maturity of new debt issues shows that public debt markets seem to be the main contributors to the decline in corporate debt maturity. There is no evidence of a decline in the maturity of syndicated bank loans. However, the syndicated loan market is just

[9] Becker and Ivashina (2010) find that bank debt is more volatile and cyclical than public debt, with bank debt shrinking rapidly during recessions. This evidence is consistent with the idea that the public debt market is the responsible for long-term trends in debt markets.

a fraction of private debt market as it does not include small non-syndicated loans. Thus, syndicated loans do not give a complete picture of private debt markets.

To have a complete picture of the volume of private debt versus public debt, we examine total nonfarm nonfinancial corporate debt using the Flow of Funds Accounts data, reported by the Federal Reserve. We construct the yearly time series of private (bank) debt and public debt. For bank debt, we combine the Flow of Funds balance sheet components Other Loans and Advances and Banks Loans Not Elsewhere Classified. For public debt, we add up the Flow of Funds balance sheet components Commercial Paper Issued by Nonfinancial Firms and Corporate Bonds. Figure 4 shows the fraction of public debt (corporate bonds and commercial paper) in total debt financing and the fraction of corporate bonds in total debt financing from 1976 to 2008. The fraction of public debt in total corporate debt grew from 50% in the 1980s to more than 65% in the 2000s. This increase is mainly due to corporate bonds, with the fraction of corporate bonds increasing from 50% in 1980 to about 65% in the 2000s. This increase in the relative importance of public debt took place in the 1980s and the 1990s.

The fact that the share of public debt increased together with the decrease in debt maturity in public debt supports the idea that decrease in corporate debt maturity has taken place mainly in public debt markets, rather than in the private debt markets.

We next estimate the regressions in Table 5 using the logarithm of the initial maturity of new bond issues and syndicated loans as dependent variables. Table 10 presents the results. Panel A reports the results for the maturity of bond issues and Panel B for the maturity of syndicated loans. We include the same set of explanatory variables used in Table 5. Additionally, we include issue type dummies (in Panel A) and loan purpose and type dummies (in Panel B).

We find that the coefficients on the determinants of debt maturity are in general consistent with those obtained in Table 5. The coefficient of firm size is positive, while the coefficient of firm size squared is negative, consistent with a non-linear relation between debt maturity and credit quality. The coefficients of market-to-book, asset volatility, and R&D are usually negative, consistent with the notion that firms with more growth opportunities and higher information asymmetry use more short-term debt. The coefficient on asset maturity and abnormal earnings are positive. There are also some differences. For example, the leverage coefficients are negative in the sample of bond issues (Panel A) but positive in the sample of syndicated loans (Panel B).

More important, the time trend coefficient is negative and significant in the sample of bond issues, while is positive in the sample of syndicated loans. In summary, the regression models evidence from new public debt issues is consistent with a decrease in maturity controlling for changes in firm characteristics. In contrast, there is no evidence of a decline in maturity in private debt markets.

7. Conclusion

We document a secular decrease in corporate debt maturity of U.S. industrial firms from 1976 to 2008. We show that this decrease in corporate debt maturity is concentrated among small firms, with the median percentage of debt maturing in more than three years decreasing from 53% in 1976 to 7% in 2008. For large firms, however, debt maturity has not declined over the same period.

We find that firms with higher degree of information asymmetry are responsible for the decrease in corporate debt maturity. Agency costs of debt and agency problems between managers and shareholders do not contribute to explain the decrease in debt maturity. Maturity matching, taxes considerations or macroeconomic factors also do not explain the decrease in corporate debt maturity.

We investigate whether changes in firm characteristics or changes in the correlations between debt maturity and its determinants could explain why firms are using more short-term debt. The answer is no as we find that firms are using more short-term debt regardless of their characteristics. The unexpected component of debt maturity is more important than changing firm characteristics in explaining the decline in corporate debt maturity of U.S. industrial firms in the 1980s and 1990s.

We find that new firms issuing public equity in the 1980s and 1990s are responsible for the decrease in corporate debt maturity. Consistent with the information asymmetry hypothesis, firms listed in recent decades use much more short-term debt than older firms. We also find that there is no trend in debt maturity when we take into account the firm's listing vintage. Moreover, we find that the decrease in debt maturity has mainly taken place in public debt markets, rather than in private debt markets. Our findings suggest that the decrease in corporate debt maturity is concentrated in the part of the economy that has been able to access public equity markets

because of greater financial market development and a decrease in the cost of equity. The shortening of corporate debt maturity has increased the exposure of firms to credit and liquidity shocks, which may have exacerbated the effects of the 2007-2008 financial crisis to the real sector.

References

Acharya, V., H. Almeida, M. Campello, 2011, Aggregate Risk and the Choice between Cash and Lines of Credit, working paper, University of Illionois.

Almeida, H., M. Campello, B. Laranjeira, and S. Weisbenner, 2009, Corporate Debt Maturity and the Real Effects of the 2007 Credit Crisis, NBER working paper nr. 14990.

Amihud, Y., 2002. Illiquidity and Stock Returns: Cross-Section and Time-Series Effects, *Journal of Financial Markets* 5, 31-56.

Barclay, M., and C. Smith, 1995, The Maturity Structure of Corporate Debt, *Journal of Finance* 50, Issue 2, 609-631.

Bates, T., K. Kahle and R. Stulz, 2009, Why Do U.S. Firms Hold So Much More Cash than They Used To?, *Journal of Finance* 64, 1985-2021.

Becker, B., and V. Ivashina, 2010, Cyclicality of Credit Supply: Firm Level Evidence, working paper, Harvard Business School.

Berger, A., M. Espinosa-Vega, W. Frame, and N. Miller, 2005, Debt Maturity, Risk, and Asymmetric Information, *Journal of Finance* 60, 2895-2923.

Billett, M., T. King, and D. Mauer, 2007, Growth Opportunities and the Choice of Leverage, Debt Maturity, and Covenants, *Journal of Finance* 62, 697–730.

Brick, I., and S. Ravid, 1985, On the Relevance of Debt Maturity Structure, *Journal of Finance* 40, 1423-1437.

Brockman, P., X. Martin, and E. Unlu, 2010, Executive Compensation and the Maturity of Corporate Debt, *Journal of Finance* 65, 1123-1161.

Brown, G., and N. Kapadia, 2007, Firm-Specific Risk and Equity Market Development, *Journal of Financial Economics* 84, 358-388.

Cooper, S., J. Groth, and W. Avera, 1985, Liquidity, Exchange Listing, and Stock Return Performance, *Journal of Economics and Business* 37, 19-33.

Datta, S., M. Iskandar-Datta, and K. Raman, 2005, Managerial Stock Ownership and the Maturity Structure of Corporate Debt, *Journal of Finance* 60, 2333–2350.

Diamond, D., 1991, Debt Maturity Structure and Liquidity Risk, *Quarterly Journal of Economics* 106, 709-737.

Diamond, D., 1993, Seniority and Maturity of Debt Contracts, *Journal of Financial Economics* 33, 341-368.

Easley, D., S. Hvidkjaer, and M. O'Hara, 2002, Is Information Risk a Determinant of Asset Returns? *Journal of Finance* 57, 2185-2221.

Easley, D., N. Kiefer, and M. O'Hara, 1996, Cream-Skimming or Profit Sharing? The Curious Role of Purchased Order Flow, *Journal of Finance* 51, 811-833.

Erel, I., B. Julio, W. Kim, and M. Weisbach, 2011, Macroeconomic Conditions and the Structure of Securities, working paper, Ohio State University.

Fama, E., and K. French, 1997, Industry Costs of Equity, *Journal of Financial Economics* 43, 153-193.

Fama, E., and K. French, 2001, Disappearing Dividends: Changing Firm Characteristics or Lower Propensity to Pay? *Journal of Financial Economics* 60, 3-43.

Fama, E., and K. French, 2004, New Lists: Fundamentals and survival rates, *Journal of Financial Economics* 73, 229-269.

Faulkender, M., 2005, Hedging or Market Timing? Selecting the Interest Rate Exposure of Corporate Debt, *Journal of Finance* 60, 931-962

Flannery, M., 1986, Asymmetric Information and Risky Debt Maturity Choice, *Journal of Finance* 41, 19-37.

Greenwood, R., S. Hanson and J. Stein, 2010, A Gap-Filling Theory of Corporate Debt Maturity Choice, *Journal of Finance* 65, 993-1028.

Gompers, P., J. Ishii, and A. Metrick, 2003, Corporate Governance and Equity Prices, *Quarterly Journal of Economics* 118, 107–155.

Guedes, J., and T. Opler, 1996, The Determinants of the Maturity of Corporate Debt Issues, *Journal of Finance* 51, 1809-1833.

Harford, J., K. Li, and X. Zhao, 2006, Corporate Boards and the Leverage and Debt Maturity Choices, working paper, University of Washington.

Harford, J., S. Klasa, and W. Maxwell, 2011, Refinancing Risk and Cash Holdings, working paper, University of Washington.

Johnson, S., 2003, Debt Maturity and the Effects of Growth Opportunities and Liquidity Risk on Leverage, *Review of Financial Studies* 16, 209-236.

Kale, J., and T. Noe, 1990, Risky Debt Maturity Choice in a Sequential Game Equilibrium, *Journal of Financial Research* 13, 155-165.

Leland, H., and K. Toft, 1996, Optimal Capital Structure, Endogenous Bankruptcy, and the Term Structure of Credit Spreads, *Journal of Finance* 51, 987-1019.

Loughran, T., and J. Ritter, 2004, Why Has IPO Underpricing Changed Over Time? *Financial Management* 33, 5-37.

Mian, A., and J. Santos, 2011, Liquidity Risk, Maturity Management and The Business Cycle, working paper, University of California at Berkeley.

Myers, S., 1977, Determinants of Corporate Borrowing, *Journal of Financial Economics* 5, 147-175.

Pastor, L., and R. Stambaugh, 2003, Liquidity Risk and Expected Stock Returns, *Journal of Political Economy* 111, 642-85.

Rajan, R., and L. Zingales, 2003, The Great Reversals: The Politics of Financial Development in the 20th Century, *Journal of Financial Economics* 69, 5-50.

Roll, R., 1984, A Simple Implicit Measure of the Effective Bid-Ask Spread in an Efficient Market, *Journal of Finance* 39, 1127-1139.

Stohs, M., and D. Mauer, 1996, The Determinants of Corporate Debt Maturity Structure, *Journal of Business* 69, 279-312.

Table 1
Summary Statistics

This table reports the mean, median, standard deviation, minimum, maximum, and number of observations for debt maturity structure variables in Panel A and other firm characteristics in Panel B. The sample consists of observations on Compustat firms from 1976 to 2008. Financial industries (SIC codes 6000-6999) and utilities (SIC codes 4900-4999) are omitted. Refer to Table A.1 in the Appendix for variables definitions.

Panel A: Debt Maturity Structure

	Mean	Median	Standard Deviation	Minimum	Maximum	Obs.
Leverage	0.273	0.242	0.207	0.000	1.000	97,215
Debt maturity 1	0.684	0.814	0.323	0.000	1.000	97,215
Debt maturity 2	0.545	0.631	0.345	0.000	1.000	97,215
Debt maturity 3	0.438	0.460	0.343	0.000	1.000	97,215
Debt maturity 4	0.354	0.314	0.327	0.000	1.000	96,975
Debt maturity 5	0.280	0.179	0.300	0.000	1.000	95,411

Panel B: Firm Characteristics

	Mean	Median	Standard Deviation	Minimum	Maximum	Obs.
Market capitalization	1,348	73	9,394	0	508,330	97,215
Size	0.242	0.104	0.285	0.000	1.000	97,215
Market-to-book	1.847	1.306	2.024	0.533	30.980	97,215
Abnormal earnings	-0.029	0.007	0.497	-3.021	3.080	97,215
Asset maturity	9.263	6.536	9.995	0.184	85.804	97,215
Asset volatility	0.301	0.225	0.252	0.024	1.465	97,215
R&D	0.040	0.000	0.098	0.000	0.784	97,215
Age	14.026	9.000	14.908	0.000	83.000	97,215
CAPEX	0.074	0.050	0.076	0.000	0.455	96,141
Asset growth	0.233	0.077	0.755	-0.690	6.518	97,215
PPE	0.317	0.268	0.222	0.000	0.917	97,212
Rating dummy	0.235	0.000	0.424	0.000	1.000	70,209
Investment grade dummy	0.112	0.000	0.316	0.000	1.000	70,209
Speculative grade dummy	0.122	0.000	0.327	0.000	1.000	70,209
S&P 500 dummy	0.076	0.000	0.264	0.000	1.000	97,201
NYSE dummy	0.308	0.000	0.462	0.000	1.000	97,215
Institutional ownership	0.304	0.231	0.279	0.000	0.975	87,389
Analyst coverage	3.167	0.000	5.757	0.000	50.000	97,215
Dispersion of analyst forecasts	0.043	0.007	0.113	0.000	0.835	36,660
Amihud illiquidity	4.779	0.220	14.727	0.000	103.908	70,828
PIN	0.209	0.199	0.078	0.024	0.910	23,057
Roll effective spread	0.011	0.006	0.014	0.000	0.067	70,828
Positive net income	0.678	1.000	0.467	0.000	1.000	97,215
Return on assets	0.059	0.118	0.285	-3.231	0.443	97,213
Dividend dummy	0.370	0.000	0.483	0.000	1.000	97,215
Cash	0.131	0.061	0.174	0.000	0.921	97,207
Taxes	0.259	0.347	0.269	-0.917	1.036	97,205
Governance index	9.152	9.000	2.750	2.000	19.000	16,907
Managerial ownership	0.010	0.002	0.026	0.000	0.946	16,352
Board independence	0.658	0.688	0.184	0.000	1.000	11,245
Term spread	1.046	0.940	1.155	-3.160	3.310	97,215
Short-term rate	6.323	5.720	3.170	0.370	16.970	97,215
Government share	62.370	65.510	7.606	42.850	72.480	97,215

Table 2
Average and Median Debt Maturity and Debt Ratios by Year

This table reports the aggregate, average and median and number of observations of debt maturity and leverage by year. Debt maturity 3 is the percentage of debt maturing in more than three years and debt maturity 5 is the percentage of debt maturing in more than five years. Leverage is the ratio of total debt to total assets. The sample consists of observations on Compustat firms from 1976 to 2008. Financial industries (SIC codes 6000-6999) and utilities (SIC codes 4900-4999) are omitted. Refer to Table A.1 in the Appendix for variables definitions.

Year	Aggregate Debt Maturity 3	Average Debt Maturity 3	Median Debt Maturity 3	Aggregate Debt Maturity 5	Average Debt Maturity 5	Median Debt Maturity 5	Average Leverage	Median Leverage	Obs.
1976	0.731	0.568	0.635	0.622	0.419	0.444	0.267	0.247	2,339
1977	0.721	0.570	0.634	0.609	0.420	0.441	0.274	0.257	2,385
1978	0.714	0.561	0.621	0.590	0.403	0.425	0.282	0.269	2,520
1979	0.689	0.535	0.593	0.571	0.385	0.396	0.288	0.273	2,582
1980	0.700	0.530	0.592	0.572	0.379	0.387	0.281	0.258	2,613
1981	0.689	0.510	0.568	0.553	0.358	0.357	0.274	0.248	2,724
1982	0.693	0.503	0.564	0.553	0.347	0.346	0.281	0.251	2,765
1983	0.709	0.487	0.543	0.571	0.336	0.332	0.262	0.225	2,995
1984	0.664	0.459	0.497	0.511	0.308	0.277	0.272	0.236	3,051
1985	0.687	0.455	0.480	0.529	0.315	0.269	0.285	0.251	3,032
1986	0.694	0.443	0.464	0.548	0.308	0.246	0.291	0.261	3,134
1987	0.697	0.440	0.461	0.532	0.299	0.217	0.297	0.269	3,272
1988	0.583	0.420	0.427	0.442	0.280	0.182	0.299	0.268	3,179
1989	0.545	0.405	0.397	0.414	0.268	0.161	0.306	0.276	3,037
1990	0.507	0.384	0.353	0.372	0.244	0.124	0.303	0.268	3,011
1991	0.549	0.381	0.342	0.419	0.234	0.093	0.284	0.252	3,018
1992	0.526	0.372	0.331	0.385	0.227	0.074	0.266	0.232	3,207
1993	0.522	0.380	0.329	0.387	0.238	0.077	0.252	0.223	3,338
1994	0.559	0.383	0.320	0.401	0.233	0.067	0.257	0.228	3,527
1995	0.553	0.384	0.320	0.372	0.229	0.052	0.262	0.235	3,630
1996	0.575	0.394	0.323	0.389	0.232	0.046	0.253	0.217	3,849
1997	0.585	0.409	0.345	0.392	0.241	0.041	0.265	0.229	3,815
1998	0.588	0.409	0.352	0.402	0.233	0.032	0.289	0.253	3,676
1999	0.564	0.381	0.312	0.404	0.222	0.019	0.282	0.252	3,425
2000	0.529	0.346	0.212	0.372	0.201	0.008	0.266	0.237	3,287
2001	0.562	0.363	0.251	0.382	0.209	0.005	0.269	0.231	2,931
2002	0.575	0.381	0.313	0.393	0.218	0.011	0.267	0.229	2,699
2003	0.573	0.423	0.419	0.422	0.252	0.053	0.250	0.215	2,461
2004	0.578	0.459	0.485	0.421	0.275	0.070	0.240	0.202	2,442
2005	0.604	0.481	0.520	0.437	0.286	0.071	0.240	0.202	2,398
2006	0.636	0.506	0.584	0.434	0.292	0.087	0.247	0.211	2,355
2007	0.651	0.499	0.565	0.434	0.267	0.030	0.259	0.222	2,316
2008	0.627	0.456	0.494	0.411	0.224	0.009	0.285	0.245	2,202
1976-1979	0.713	0.558	0.621	0.598	0.407	0.427	0.278	0.262	2,457
1980-1984	0.691	0.498	0.553	0.552	0.346	0.340	0.274	0.244	2,830
1985-1989	0.641	0.433	0.446	0.493	0.294	0.215	0.295	0.265	3,131
1990-1994	0.532	0.380	0.335	0.393	0.235	0.087	0.272	0.241	3,220
1995-1999	0.573	0.396	0.331	0.392	0.231	0.038	0.270	0.237	3,679
2000-2004	0.563	0.394	0.336	0.398	0.231	0.030	0.259	0.223	2,764
2005-2008	0.630	0.485	0.541	0.429	0.267	0.049	0.258	0.220	2,318
1976-2008	0.617	0.445	0.444	0.462	0.284	0.165	0.273	0.242	2,946
Time trend x100	-0.441	-0.348	-0.610	-0.680	-0.524	-1.424	-0.085	-0.140	
p-value	0.000	0.002	0.004	0.000	0.000	0.000	0.006	0.000	

Table 3
Median Debt Maturity by Group of Firms

This table reports median debt maturity defined as the percentage of debt maturing in more than three years. The breakpoints for the three size groups are the 20th and 50th NYSE percentiles of market capitalization in each year. The breakpoint for the low and high groups is the yearly 50th percentile of each firm characteristic. The sample consists of observations on Compustat firms from 1976 to 2008. Financial industries (SIC codes 6000-6999) and utilities (SIC codes 4900-4999) are omitted. Refer to Table A.1 in the Appendix for variables definitions.

	1976-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-08	1976-08	Time Trend x100	p-value
Size										
Small	0.525	0.439	0.282	0.165	0.157	0.093	0.172	0.256	-1.387	0.000
Medium	0.681	0.646	0.614	0.536	0.592	0.588	0.782	0.628	0.100	0.560
Large	0.721	0.688	0.700	0.654	0.674	0.685	0.722	0.690	-0.029	0.647
Leverage										
Low	0.612	0.521	0.384	0.226	0.176	0.148	0.357	0.338	-1.309	0.000
High	0.630	0.591	0.527	0.505	0.594	0.586	0.752	0.592	0.305	0.059
Market-to-book										
Low	0.616	0.582	0.494	0.409	0.433	0.394	0.581	0.495	-0.421	0.030
High	0.628	0.518	0.382	0.249	0.216	0.252	0.486	0.380	-0.867	0.001
CAPEX										
Low	0.569	0.513	0.362	0.245	0.216	0.228	0.420	0.357	-0.886	0.000
High	0.663	0.589	0.518	0.424	0.439	0.420	0.620	0.518	-0.433	0.021
Asset growth										
Low	0.615	0.539	0.418	0.338	0.327	0.251	0.492	0.418	-0.792	0.001
High	0.626	0.567	0.473	0.336	0.340	0.406	0.577	0.468	-0.475	0.031
Governance index										
Low				0.615	0.647	0.611	0.692	0.638	0.394	0.047
High				0.637	0.687	0.653	0.691	0.666	0.222	0.084
Managerial ownership										
Low				0.649	0.661	0.638	0.698	0.661	0.292	0.121
High				0.582	0.618	0.604	0.702	0.627	0.699	0.005
Board independence										
Low					0.661	0.628	0.705	0.662	0.437	0.153
High					0.685	0.651	0.690	0.673	0.112	0.739
Asset maturity										
Low	0.539	0.453	0.277	0.176	0.131	0.146	0.351	0.287	-1.005	0.000
High	0.682	0.627	0.568	0.487	0.513	0.487	0.647	0.567	-0.348	0.021
R&D										
Low	0.626	0.571	0.496	0.413	0.457	0.463	0.624	0.515	-0.210	0.201
High	0.605	0.486	0.261	0.113	0.038	0.006	0.054	0.217	-2.097	0.000
PPE										
Low	0.540	0.460	0.270	0.151	0.098	0.098	0.261	0.260	-1.302	0.000
High	0.683	0.626	0.570	0.506	0.548	0.516	0.676	0.584	-0.214	0.123
Rating										
Non-rated			0.311	0.221	0.159	0.090	0.194	0.190	-0.792	0.001
Rated			0.754	0.732	0.792	0.754	0.805	0.766	0.265	0.019
S&P 500 dummy										
Non-S&P 500	0.614	0.543	0.426	0.307	0.293	0.261	0.478	0.410	-0.849	0.000
S&P 500	0.694	0.658	0.644	0.611	0.657	0.656	0.688	0.656	-0.008	0.908

Table 3: continued

	1976-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-08	1976-08	Time Trend x100	p-value
NYSE dummy										
Non-NYSE	0.552	0.473	0.321	0.197	0.174	0.114	0.214	0.287	-1.396	0.000
NYSE	0.696	0.668	0.656	0.622	0.675	0.664	0.750	0.673	0.115	0.136
Institutional ownership										
Low		0.429	0.239	0.142	0.111	0.081	0.190	0.199	-1.073	0.000
High		0.644	0.611	0.532	0.578	0.587	0.721	0.608	0.156	0.311
Analyst coverage										
Low	0.592	0.491	0.334	0.218	0.198	0.132	0.237	0.308	-1.424	0.000
High	0.689	0.638	0.592	0.491	0.514	0.574	0.717	0.596	-0.113	0.493
Dispersion of analyst forecasts										
Low	0.714	0.668	0.655	0.600	0.645	0.673	0.737	0.667	0.045	0.601
High	0.694	0.637	0.560	0.427	0.301	0.324	0.554	0.492	-1.008	0.000
Asset volatility										
Low	0.650	0.609	0.566	0.522	0.576	0.550	0.692	0.590	0.002	0.989
High	0.582	0.476	0.280	0.143	0.084	0.053	0.215	0.254	-1.607	0.000
Amihud illiquidity										
Low	0.726	0.682	0.648	0.551	0.567	0.586	0.725	0.627	-0.491	0.002
High	0.569	0.575	0.410	0.235	0.149	0.100	0.193	0.327	-2.084	0.000
PIN										
Low		0.667	0.668	0.636	0.691	0.651		0.664	0.044	0.754
High		0.607	0.578	0.505	0.534	0.350		0.526	-0.984	0.000
Roll effective spread										
Low	0.696	0.653	0.620	0.545	0.542	0.476	0.608	0.586	-0.747	0.000
High	0.620	0.606	0.444	0.230	0.172	0.226	0.389	0.375	-1.781	0.000
Abnormal earnings										
Low	0.604	0.524	0.423	0.308	0.306	0.332	0.495	0.420	-0.625	0.006
High	0.636	0.580	0.472	0.361	0.360	0.329	0.576	0.465	-0.633	0.004
Credit quality										
Speculative grade			0.777	0.797	0.876	0.830	0.878	0.832	0.488	0.001
Investment grade			0.732	0.685	0.700	0.675	0.702	0.697	-0.139	0.148
Dividend dummy										
Non-payer	0.469	0.391	0.290	0.202	0.196	0.192	0.370	0.294	-0.603	0.002
Payer	0.671	0.643	0.623	0.566	0.616	0.600	0.679	0.625	-0.062	0.425
Positive net income										
Low	0.404	0.344	0.221	0.153	0.106	0.086	0.198	0.211	-0.938	0.000
High	0.639	0.598	0.538	0.433	0.461	0.485	0.623	0.534	-0.284	0.056
Cash										
Low	0.585	0.530	0.448	0.391	0.472	0.471	0.661	0.501	0.076	0.661
High	0.654	0.580	0.445	0.272	0.166	0.146	0.304	0.360	-1.648	0.000
Listing year										
<1980	0.621	0.593	0.570	0.520	0.570	0.590	0.641	0.584	0.039	0.623
1980-1989		0.287	0.270	0.250	0.362	0.349	0.496	0.330	0.774	0.000
1990-1999				0.168	0.159	0.196	0.478	0.238	1.839	0.001
2000-2008						0.058	0.427	0.222	6.581	0.003
Age										
New list	0.507	0.343	0.264	0.165	0.140	0.081	0.445	0.266	-0.686	0.016
Old list	0.651	0.605	0.543	0.438	0.469	0.431	0.552	0.522	-0.543	0.000

Table 4
Median Debt Maturity by Industry

This table reports median debt maturity, defined as the percentage of debt maturing in more than three years, by industry. The industry breakdown is based on 49 industry groups classification of Fama and French (1997). The sample consists of observations on Compustat firms from 1976 to 2008. Financial industries (SIC codes 6000-6999) and utilities (SIC codes 4900-4999) are omitted. Refer to Table A.1 in the Appendix for variables definitions.

									Time Trend		Market Cap.		Nr. of Firms	
	1976-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-08	1976-08	x100	p-value	1976	2008	1976	2008
Agriculture	0.488	0.481	0.388	0.264	0.493	0.577	0.615	0.467	0.469	0.138	0.15	0.99	13	7
Food Products	0.556	0.505	0.568	0.523	0.487	0.509	0.621	0.535	0.067	0.539	4.34	2.61	94	44
Candy & Soda	0.665	0.717	0.708	0.488	0.387	0.673	0.679	0.613	-0.307	0.291	0.25	0.31	14	9
Beer & Liquor	0.609	0.601	0.708	0.639	0.512	0.447	0.487	0.573	-0.674	0.009	1.47	1.87	12	7
Tobacco Products	0.699	0.564	0.429	0.644	0.482	0.609	0.661	0.578	0.061	0.812	0.68	1.98	6	5
Recreation	0.562	0.444	0.362	0.202	0.126	0.148	0.242	0.292	-1.326	0.000	0.31	0.23	31	18
Entertainment	0.671	0.608	0.529	0.459	0.528	0.685	0.723	0.595	0.207	0.421	0.42	0.36	30	40
Printing and Publishing	0.662	0.610	0.477	0.502	0.520	0.591	0.666	0.570	0.042	0.855	0.66	0.27	36	23
Consumer Goods	0.570	0.590	0.479	0.369	0.413	0.417	0.489	0.472	-0.513	0.001	2.69	3.51	75	39
Apparel	0.557	0.450	0.391	0.268	0.178	0.273	0.273	0.337	-1.024	0.000	0.48	0.48	77	31
Healthcare	0.765	0.723	0.494	0.353	0.432	0.465	0.605	0.540	-0.792	0.007	0.14	0.62	27	59
Medical Equipment	0.581	0.396	0.202	0.120	0.061	0.038	0.220	0.221	-1.431	0.000	0.39	2.20	32	84
Pharmaceutical Products	0.458	0.460	0.271	0.167	0.096	0.133	0.129	0.242	-1.351	0.000	3.73	12.97	37	174
Chemicals	0.700	0.609	0.585	0.541	0.627	0.600	0.663	0.614	-0.043	0.684	6.01	1.73	77	62
Rubber and Plastic Products	0.658	0.569	0.490	0.400	0.561	0.427	0.454	0.506	-0.578	0.001	0.60	0.22	51	19
Textiles	0.612	0.609	0.582	0.567	0.646	0.537	0.553	0.587	-0.184	0.320	0.55	0.06	61	6
Construction Materials	0.658	0.605	0.595	0.501	0.590	0.452	0.634	0.572	-0.294	0.038	3.10	0.75	145	49
Construction	0.436	0.424	0.348	0.212	0.252	0.505	0.678	0.399	0.542	0.059	0.31	0.67	42	33
Steel Works	0.692	0.623	0.578	0.537	0.652	0.554	0.695	0.614	-0.041	0.816	1.92	0.79	72	34
Fabricated Products	0.608	0.452	0.471	0.284	0.461	0.327	0.361	0.420	-0.622	0.067	0.11	0.05	19	7
Machinery	0.603	0.555	0.404	0.296	0.317	0.335	0.520	0.425	-0.595	0.007	2.95	2.70	141	88
Electrical Equipment	0.671	0.596	0.465	0.352	0.336	0.349	0.274	0.432	-1.330	0.000	1.34	0.92	49	56
Automobiles and Trucks	0.600	0.608	0.528	0.338	0.393	0.399	0.564	0.484	-0.547	0.009	6.96	0.54	62	36
Aircraft	0.620	0.607	0.611	0.583	0.625	0.634	0.676	0.621	0.151	0.242	1.12	2.05	27	17
Shipbuilding, Railroad Equip.	0.614	0.603	0.731	0.565	0.624	0.589	0.781	0.641	0.185	0.350	0.32	0.41	14	10
Defense	0.675	0.792	0.605	0.401	0.383	0.349	0.693	0.549	-0.871	0.070	0.24	0.56	8	8
Precious Metals	0.523	0.348	0.210	0.216	0.574	0.253	0.881	0.413	0.830	0.131	0.14	0.29	5	2
Non-Metallic Ind. Metal Mining	0.714	0.598	0.575	0.540	0.581	0.524	0.733	0.602	-0.044	0.847	0.54	0.58	14	15
Coal	0.667	0.601	0.585	0.355	0.613	0.546	0.861	0.594	0.372	0.322	0.25	0.31	8	14
Petroleum and Natural Gas	0.628	0.477	0.430	0.466	0.640	0.682	0.834	0.586	0.940	0.000	19.25	11.74	110	141
Communication	0.754	0.761	0.716	0.626	0.801	0.723	0.805	0.738	0.106	0.393	8.70	8.40	47	89
Personal Services	0.589	0.613	0.426	0.536	0.491	0.406	0.611	0.520	-0.230	0.303	0.18	0.37	23	30
Business Services	0.455	0.445	0.250	0.195	0.152	0.121	0.210	0.257	-1.099	0.000	0.94	2.09	92	145
Computers	0.512	0.369	0.174	0.052	0.029	0.144	0.188	0.201	-1.143	0.000	1.81	2.61	41	39
Computer Software	0.516	0.214	0.086	0.012	0.000	0.000	0.022	0.112	-1.401	0.000	7.42	5.64	17	138
Electronic Equipment	0.519	0.480	0.353	0.169	0.169	0.094	0.233	0.283	-1.365	0.000	2.15	4.94	103	139
Measuring and Control Equip.	0.556	0.540	0.426	0.223	0.207	0.229	0.183	0.336	-1.425	0.000	0.54	1.10	51	50
Business Supplies	0.699	0.668	0.586	0.533	0.583	0.603	0.679	0.617	-0.153	0.284	3.89	1.57	68	37
Shipping Containers	0.721	0.571	0.622	0.547	0.738	0.732	0.685	0.657	0.272	0.173	0.68	0.31	21	10
Transportation	0.672	0.643	0.636	0.594	0.568	0.591	0.723	0.629	-0.041	0.756	2.60	3.26	73	84
Wholesale	0.517	0.457	0.341	0.226	0.260	0.203	0.483	0.347	-0.570	0.016	1.34	1.53	127	93
Retail	0.690	0.646	0.592	0.516	0.494	0.477	0.582	0.567	-0.579	0.000	5.34	8.48	209	141
Restaraunts, Hotels, Motels	0.704	0.645	0.582	0.508	0.521	0.566	0.754	0.604	-0.075	0.667	0.87	1.79	58	50
Almost Nothing	0.533	0.356	0.236	0.225	0.161	0.220	0.473	0.303	-0.438	0.103	2.11	5.15	20	20

Table 5
Panel Regression of Debt Maturity

This table reports OLS, fixed effects and cross-sectional (Fama-MacBeth procedure) regressions of debt maturity defined as the percentage of debt maturing in more than three years. The sample consists of observations on Compustat firms from 1976 to 2008. Financial industries (SIC codes 6000-6999) and utilities (SIC codes 4900-4999) are omitted. Refer to Table A.1 in the Appendix for variables definitions. Robust t-statistics adjusted for firm-level clustering are in parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS	OLS	FE	OLS	OLS	FE	FM 1976-1989	FM 1990-2008
Size	1.110	1.084	0.713	1.109	1.084	0.713	0.925	1.171
	(51.70)	(51.51)	(20.91)	(51.49)	(51.51)	(20.91)	(16.75)	(48.52)
Size squared	-0.852	-0.844	-0.505	-0.850	-0.844	-0.505	-0.712	-0.896
	(-32.25)	(-32.50)	(-12.98)	(-32.03)	(-32.50)	(-12.98)	(-14.40)	(-27.40)
Market-to-book	-0.017	-0.017	-0.012	-0.017	-0.017	-0.012	-0.019	-0.021
	(-22.50)	(-22.13)	(-12.69)	(-22.52)	(-22.13)	(-12.69)	(-10.69)	(-13.43)
Abnormal earnings	0.024	0.021	0.016	0.023	0.021	0.016	0.038	0.016
	(11.85)	(10.99)	(8.19)	(11.57)	(10.99)	(8.19)	(7.69)	(3.00)
Asset maturity	0.003	0.002	0.000	0.003	0.002	0.000	0.003	0.003
	(13.43)	(9.05)	(1.20)	(13.30)	(9.05)	(1.20)	(8.37)	(29.68)
Asset volatility	-0.166	-0.128	-0.019	-0.161	-0.128	-0.019	-0.165	-0.129
	(-27.21)	(-20.31)	(-2.94)	(-26.43)	(-20.31)	(-2.94)	(-18.22)	(-17.32)
Leverage	0.398	0.395	0.350	0.398	0.395	0.350	0.227	0.502
	(44.09)	(43.53)	(29.26)	(44.05)	(43.53)	(29.26)	(14.26)	(22.58)
R&D	-0.185	-0.159	-0.097	-0.176	-0.159	-0.097	-0.151	-0.153
	(-12.25)	(-9.97)	(-3.94)	(-11.53)	(-9.97)	(-3.94)	(-7.78)	(-10.89)
Term spread	-0.013	-0.001	-0.002	-0.011	-0.001	-0.002		
	(-14.75)	(-0.76)	(-1.39)	(-13.20)	(-0.76)	(-1.39)		
Time trend x100				-0.116	-0.192	-0.223		
				(-6.01)	(-7.02)	(-6.30)		
Intercept	0.260			0.276			0.346	0.190
	(51.34)			(47.18)			(18.97)	(21.48)
Year dummies	No	Yes	Yes	No	Yes	Yes	No	No
Industry dummies	No	Yes	No	No	Yes	No	No	No
Observations	97215	97215	97215	97215	97215	97215	39628	57587
R-squared	0.304	0.331	0.605	0.305	0.331	0.605	0.230	0.334

Table 6
Robustness of Panel Regression of Debt Maturity

This table reports several alternative regression models of debt maturity defined as the percentage of debt maturing in more than three years. The sample consists of observations on Compustat firms from 1976 to 2008. Financial industries (SIC codes 6000-6999) and utilities (SIC codes 4900-4999) are omitted. Refer to Table A.1 in the Appendix for variables definitions. Robust t-statistics adjusted for firm-level clustering are in parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)		
	OLS	Tobit	Changes	OLS	OLS	OLS	OLS Debt3		
	ln(Debt3)	Debt3	Debt3	Debt3	Debt3	Debt3	Estimate	Interaction	Interaction
							1976-1989	1990s	2000s
Size	5.259	1.300	0.330	0.914	0.626	1.106	0.9676	0.1724	0.2630
	(28.84)	(52.88)	(11.75)	(34.99)	(19.06)	(51.55)	(33.28)	(4.48)	(5.65)
Size squared	-4.004	-1.003	-0.197	-0.858	-0.609	-0.849	-0.7466	-0.1214	-0.2035
	(-21.93)	(-34.02)	(-5.91)	(-27.96)	(-17.08)	(-32.12)	(-22.12)	(-2.72)	(-3.77)
Market-to-book	-0.125	-0.026	-0.006	-0.011	-0.012	-0.017	-0.0162	-0.0009	-0.0020
	(-5.10)	(-18.29)	(-7.86)	(-13.27)	(-11.03)	(-22.18)	(-13.26)	(-0.56)	(-1.09)
Abnormal earnings	0.117	0.028	0.011	0.018	0.025	0.023	0.0338	-0.0150	-0.0148
	(2.87)	(10.94)	(7.48)	(8.41)	(9.24)	(11.68)	(9.04)	(-2.83)	(-3.01)
Asset maturity	0.014	0.003	0.000	-0.000	0.000	0.003	0.0023	0.0003	0.0006
	(7.04)	(11.16)	(1.33)	(-0.98)	(0.74)	(13.38)	(7.85)	(0.91)	(1.47)
Asset volatility	-1.251	-0.222	-0.003	-0.101	-0.082	-0.158	-0.1815	0.0366	0.0457
	(-9.02)	(-25.38)	(-0.77)	(-15.76)	(-11.01)	(-25.97)	(-16.45)	(2.71)	(3.04)
Leverage	1.732	0.493	0.189	0.377	0.420	0.399	0.2312	0.2327	0.2849
	(18.53)	(44.43)	(16.56)	(35.55)	(33.82)	(44.25)	(16.59)	(13.01)	(13.53)
R&D	-1.499	-0.338	-0.098	-0.102	-0.165	-0.179	-0.2366	0.0919	0.0782
	(-3.75)	(-13.30)	(-5.39)	(-5.58)	(-7.50)	(-11.84)	(-6.27)	(2.26)	(1.80)
Lagged debt maturity			-0.246						
			(-77.80)						
Rating dummy				0.191	0.183				
				(30.90)	(27.64)				
Taxes				0.062	0.051				
				(11.56)	(8.59)				
Return on assets				0.052	0.023				
				(8.30)	(2.85)				
Cash				0.123	0.129				
				(10.39)	(9.65)				
PPE				0.236	0.243				
				(17.32)	(15.35)				
CAPEX				-0.113	-0.184				
				(-4.01)	(-5.60)				
Dividend dummy				0.027	0.020				
				(5.00)	(3.41)				
Institutional ownership					0.121				
					(10.24)				
Analyst coverage					-0.000				
					(-0.22)				
Amihud illiquidity					-0.001				
					(-10.84)				
Term spread	-0.045	-0.013	-0.004	-0.008	-0.007	-0.010	-0.0104		
	(-3.89)	(-12.54)	(-5.97)	(-3.63)	(-3.07)	(-11.81)	(-12.07)		
Short term rate				0.004	0.002				
				(3.03)	(1.51)				
Government share				-0.006	-0.005				
				(-12.13)	(-9.89)				
Time trend x100	-1.999	-0.179	-0.105	-0.231	-0.600				
	(-11.72)	(-7.88)	(-11.90)	(-4.27)	(-9.44)				
1990s dummy						-0.049			
						(-14.14)			
2000s dummy						-0.014			
						(-3.34)			
Intercept	-1.889	0.241	0.124	0.535	0.571	0.275	0.3509	-0.1544	-0.1469
	(-32.04)	(33.68)	(53.08)	(12.95)	(12.61)	(52.24)	(45.53)	(-15.96)	(-12.99)
Observations	80561	97215	78718	69361	54342	97215		97215	
R-squared	0.057	0.305	0.130	0.365	0.372	0.308		0.314	

Table 7
Predicted Debt Maturity and Deviations from Actual Debt Maturity by Year

This table reports the differences between the actual average and predicted debt maturity, defined as the percentage of debt maturing in more than three years, from 1980 to 2008. The predicted values are obtained using the coefficients of the explanatory variables for the sample period prior to 1980. Estimates of this regression are as follows: Debt maturity = 0.411 + 0.694 Size -0.510 Size^2 – 0.026 Market-to-book + 0.044 Abnormal earnings + 0.004 Asset maturity - 0.141 Asset volatility + 0.168 Leverage – 0.125 R&D. t-statistics on the differences between actual average and predicted debt maturity are also presented. The sample consists of observations on Compustat firms from 1976 to 2008. Financial industries (SIC codes 6000-6999) and utilities (SIC codes 4900-4999) are omitted. Refer to Table A.1 in the Appendix for variables definitions.

	All firms				Small firms				Medium firms				Large firms			
Year	Actual	Predicted	Actual - Predicted	t-statistic	Actual	Predicted	Actual - Predicted	t-statistic	Actual	Predicted	Actual - Predicted	t-statistic	Actual	Predicted	Actual - Predicted	t-statistic
1980	0.530	0.529	0.001	0.28	0.455	0.453	0.002	0.26	0.596	0.586	0.010	1.01	0.642	0.650	-0.008	-0.89
1981	0.510	0.530	-0.020	-4.14	0.429	0.457	-0.028	-3.98	0.602	0.593	0.009	0.95	0.631	0.658	-0.027	-3.14
1982	0.503	0.518	-0.015	-3.13	0.425	0.448	-0.023	-3.27	0.591	0.582	0.009	0.87	0.633	0.651	-0.018	-2.04
1983	0.487	0.500	-0.013	-2.69	0.408	0.430	-0.022	-3.33	0.573	0.571	0.002	0.22	0.645	0.645	0.000	0.03
1984	0.459	0.510	-0.051	-10.92	0.376	0.443	-0.067	-10.74	0.562	0.588	-0.026	-2.56	0.627	0.651	-0.024	-2.61
1985	0.455	0.500	-0.045	-9.10	0.369	0.431	-0.063	-9.61	0.559	0.580	-0.022	-1.96	0.641	0.650	-0.009	-0.88
1986	0.443	0.497	-0.054	-10.84	0.347	0.430	-0.082	-12.46	0.558	0.576	-0.018	-1.66	0.643	0.642	0.001	0.15
1987	0.440	0.491	-0.051	-10.15	0.347	0.427	-0.080	-12.28	0.570	0.571	-0.001	-0.06	0.639	0.637	0.002	0.21
1988	0.420	0.499	-0.078	-15.28	0.335	0.434	-0.099	-15.20	0.543	0.587	-0.044	-3.67	0.619	0.655	-0.036	-3.24
1989	0.405	0.498	-0.093	-17.57	0.314	0.432	-0.117	-17.78	0.547	0.591	-0.045	-3.45	0.605	0.653	-0.048	-4.22
1990	0.384	0.500	-0.116	-22.21	0.295	0.437	-0.142	-21.79	0.519	0.581	-0.062	-5.01	0.571	0.649	-0.078	-6.57
1991	0.381	0.490	-0.109	-20.78	0.285	0.427	-0.141	-21.04	0.483	0.548	-0.064	-5.58	0.588	0.638	-0.050	-4.33
1992	0.372	0.491	-0.119	-23.26	0.278	0.422	-0.144	-21.81	0.451	0.556	-0.104	-9.43	0.591	0.644	-0.053	-4.65
1993	0.380	0.488	-0.107	-21.62	0.272	0.416	-0.144	-23.13	0.491	0.555	-0.064	-5.57	0.603	0.641	-0.038	-3.52
1994	0.383	0.493	-0.111	-22.53	0.277	0.422	-0.144	-23.71	0.516	0.574	-0.058	-4.96	0.596	0.648	-0.052	-4.74
1995	0.384	0.481	-0.097	-19.53	0.287	0.415	-0.128	-21.00	0.494	0.548	-0.054	-4.49	0.598	0.633	-0.035	-3.17
1996	0.394	0.469	-0.075	-15.49	0.301	0.405	-0.104	-17.20	0.507	0.543	-0.035	-2.98	0.610	0.625	-0.015	-1.39
1997	0.409	0.461	-0.051	-10.10	0.315	0.397	-0.082	-13.39	0.562	0.551	0.011	0.86	0.627	0.619	0.008	0.74
1998	0.409	0.464	-0.055	-10.56	0.321	0.406	-0.085	-13.20	0.558	0.552	0.006	0.45	0.600	0.600	-0.001	-0.05
1999	0.381	0.454	-0.073	-13.60	0.304	0.408	-0.104	-15.18	0.470	0.517	-0.046	-3.67	0.520	0.530	-0.010	-0.86
2000	0.346	0.451	-0.105	-19.38	0.258	0.396	-0.138	-20.88	0.414	0.514	-0.100	-7.70	0.555	0.562	-0.007	-0.56
2001	0.363	0.450	-0.088	-15.06	0.248	0.380	-0.132	-18.55	0.480	0.533	-0.053	-3.75	0.627	0.603	0.024	1.84
2002	0.381	0.493	-0.111	-18.19	0.259	0.423	-0.165	-21.74	0.523	0.574	-0.051	-3.35	0.635	0.635	0.000	-0.01
2003	0.423	0.487	-0.063	-9.95	0.305	0.402	-0.097	-11.60	0.551	0.569	-0.018	-1.17	0.613	0.631	-0.019	-1.51
2004	0.459	0.491	-0.032	-4.87	0.338	0.408	-0.071	-8.10	0.625	0.575	0.050	3.19	0.630	0.630	-0.001	-0.06
2005	0.481	0.494	-0.013	-1.93	0.357	0.410	-0.053	-5.58	0.631	0.567	0.064	4.06	0.646	0.632	0.014	1.14
2006	0.506	0.495	0.010	1.51	0.380	0.408	-0.029	-2.98	0.671	0.580	0.090	5.70	0.672	0.635	0.037	3.15
2007	0.499	0.503	-0.004	-0.55	0.371	0.419	-0.048	-4.82	0.651	0.583	0.068	4.38	0.671	0.633	0.039	3.16
2008	0.456	0.513	-0.058	-7.99	0.307	0.425	-0.118	-11.52	0.577	0.577	0.000	-0.01	0.650	0.637	0.014	1.11

Table 8
Panel Regression of Debt Maturity with Listing Groups

This table reports OLS regressions of debt maturity defined as the percentage of debt maturing in more than three years. The explanatory variables include listing group dummy variables defined by decades. The sample consists of observations on Compustat firms from 1976 to 2008. Financial industries (SIC codes 6000-6999) and utilities (SIC codes 4900-4999) are omitted. Refer to Table A.1 in the Appendix for variables definitions. Robust t-statistics adjusted for firm-level clustering are in parentheses.

	(1)	(2)	(3)	(4)	(5)
Pre-1980 listing dummy		0.520	0.279		0.281
		(111.91)	(46.62)		(42.98)
1980-1989 listing dummy		0.353	0.244		0.243
		(52.12)	(33.57)		(32.93)
1990-1999 listing dummy		0.328	0.227		0.224
		(42.52)	(29.69)		(26.99)
2000-2008 listing dummy		0.311	0.241		0.236
		(30.03)	(25.57)		(22.03)
Size			1.092	1.111	1.090
			(49.92)	(51.25)	(49.48)
Size squared			-0.853	-0.875	-0.846
			(-31.86)	(-31.84)	(-30.29)
Market-to-book			-0.017	-0.017	-0.017
			(-21.57)	(-22.10)	(-21.63)
Abnormal earnings			0.022	0.023	0.022
			(11.33)	(11.51)	(11.32)
Asset maturity			0.002	0.002	0.002
			(12.65)	(12.79)	(12.67)
Asset volatility			-0.144	-0.152	-0.144
			(-23.09)	(-24.56)	(-23.16)
Leverage			0.406	0.401	0.405
			(44.55)	(44.09)	(44.53)
R&D			-0.175	-0.176	-0.174
			(-11.47)	(-11.55)	(-11.42)
Term spread			-0.011	-0.011	-0.011
			(-12.53)	(-13.25)	(-12.51)
Age				0.001	-0.000
				(4.78)	(-1.00)
Time trend x100	-0.376	0.152	-0.001	-0.131	0.001
	(-15.73)	(5.31)	(-0.43)	(-6.66)	(0.36)
Intercept	0.502			0.267	
	(111.84)			(44.73)	
Observations	97215	97215	97215	97215	97215
R-squared	0.010	0.644	0.736	0.306	0.736

Table 9
Average and Median Initial Maturity of New Bond Issues and Syndicated Loans by Year

This table reports the average and median initial maturity (in years) of new bond issues and syndicated loans by year. The table also contains breakdown of new issues and loans by size, age, and rating groups. In Panel A the sample consists of Mergent Fixed Income Securities Database (FISD) bond issues by firms with Compustat identifiers from 1976 to 2008. In Panel B the sample consists of Loan Pricing Corporation's Dealscan loan facilities by firms with Compustat identifiers from 1987 to 2008. Financial industries (SIC codes 6000-6999) and utilities (SIC codes 4900-4999) are omitted. Refer to Table A.1 in the Appendix for variables definitions.

Panel A: Bond Issues

	Syndicated Loans			Percent of Issues by Size			Percent of Issues by Age		Percent of Issues by Rating		
Year	Average Maturity	Median Maturity	Nr. of Issues	Small	Medium	Large	New	Old	Unrated	Spec. Grade	Invest. Grade
1976	25.6	25.0	36	3%	97%	0%	3%	97%			
1977	23.4	25.0	19	11%	26%	63%	11%	89%			
1978	23.0	20.0	26	15%	19%	65%	4%	96%			
1979	24.1	25.0	30	7%	30%	63%	3%	97%			
1980	20.3	20.0	76	3%	21%	76%	5%	95%			
1981	20.2	20.0	42	10%	19%	71%	2%	98%			
1982	16.3	15.0	51	6%	18%	76%	6%	94%			
1983	17.3	19.0	82	13%	27%	60%	11%	89%			
1984	16.4	15.0	65	11%	22%	68%	18%	82%			
1985	16.3	15.0	149	10%	22%	68%	17%	83%			
1986	17.4	15.0	233	12%	23%	65%	18%	82%	6%	34%	60%
1987	17.8	19.5	164	12%	21%	66%	17%	83%	7%	36%	57%
1988	14.2	10.5	116	8%	18%	74%	21%	79%	4%	29%	66%
1989	14.8	13.0	194	2%	11%	87%	8%	92%	2%	15%	83%
1990	12.4	11.0	158	3%	5%	92%	9%	91%	1%	9%	90%
1991	15.5	12.0	194	3%	5%	92%	10%	90%	4%	13%	83%
1992	13.2	10.0	248	4%	13%	83%	11%	89%	5%	33%	62%
1993	14.3	10.0	260	14%	20%	66%	18%	82%	11%	33%	56%
1994	11.6	10.0	113	9%	24%	67%	24%	76%	10%	36%	54%
1995	13.9	10.0	184	9%	22%	68%	22%	78%	6%	36%	58%
1996	14.1	10.0	305	18%	19%	63%	29%	71%	13%	38%	50%
1997	15.1	10.0	422	18%	32%	50%	36%	64%	12%	49%	39%
1998	12.1	10.0	560	22%	19%	59%	33%	67%	9%	51%	39%
1999	11.1	10.0	402	11%	17%	72%	24%	76%	6%	41%	53%
2000	9.3	7.0	311	5%	13%	81%	34%	66%	8%	41%	51%
2001	9.9	8.0	523	7%	21%	72%	15%	85%	8%	36%	56%
2002	9.5	8.0	427	13%	24%	63%	14%	86%	8%	41%	51%
2003	12.2	10.0	598	14%	27%	59%	12%	88%	16%	46%	38%
2004	12.1	10.0	583	22%	27%	51%	12%	88%	17%	54%	29%
2005	11.9	10.0	430	21%	25%	54%	14%	86%	18%	50%	32%
2006	11.9	10.0	419	14%	18%	68%	9%	91%	17%	43%	40%
2007	11.9	9.0	540	19%	18%	63%	11%	89%	21%	37%	42%
2008	11.5	9.0	320	7%	15%	78%	13%	87%	14%	23%	63%
1976-1979	24.0	23.8		9%	43%	48%	5%	95%			
1980-1984	18.1	17.8		8%	21%	70%	9%	91%			
1985-1989	16.1	14.6		9%	19%	72%	16%	84%	5%	29%	67%
1990-1994	13.4	10.6		7%	13%	80%	14%	86%	6%	25%	69%
1995-1999	13.3	10.0		16%	22%	63%	29%	71%	9%	43%	48%
2000-2004	10.6	8.6		12%	22%	65%	17%	83%	11%	44%	45%
2005-2008	11.8	9.5		15%	19%	66%	12%	88%	18%	38%	44%
1976-2008	15.2	13.4		11%	22%	67%	15%	85%	10%	36%	54%
Time trend	-0.393	-0.475									
p-value	0.000	0.000									

Table 9: continued

Panel B: Syndicated Loans

	Syndicated Loans			Percent of Loans by Size			Percent of Loans by Age		Percent of Issues by Rating		
Year	Average Maturity	Median Maturity	Nr. of Facilities	Small	Medium	Large	New	Old	Unrated	Spec. Grade	Invest. Grade
1987	4.2	4.0	1,663	27%	32%	41%	31%	69%	51%	26%	23%
1988	4.0	4.0	3,968	38%	29%	33%	36%	64%	56%	26%	19%
1989	4.5	4.6	3,167	45%	28%	27%	36%	64%	68%	19%	12%
1990	4.2	3.8	3,304	43%	32%	25%	38%	62%	69%	18%	13%
1991	3.5	3.0	2,838	43%	35%	22%	42%	58%	68%	21%	11%
1992	3.8	3.0	4,265	42%	32%	26%	38%	62%	69%	20%	11%
1993	3.6	3.0	5,042	36%	34%	30%	42%	58%	64%	21%	15%
1994	3.9	3.5	6,475	37%	28%	34%	41%	59%	64%	20%	16%
1995	4.0	4.1	5,474	38%	28%	34%	40%	60%	60%	23%	17%
1996	4.0	4.0	7,409	48%	27%	25%	48%	52%	65%	22%	12%
1997	4.2	4.9	8,558	46%	27%	27%	48%	52%	61%	24%	14%
1998	4.2	4.8	7,275	54%	22%	24%	44%	56%	57%	30%	13%
1999	3.9	3.9	6,263	44%	28%	28%	36%	64%	54%	28%	17%
2000	3.4	3.0	5,513	39%	26%	36%	33%	67%	48%	25%	27%
2001	3.0	3.0	5,907	37%	25%	38%	25%	75%	42%	25%	33%
2002	3.1	3.0	6,029	43%	22%	35%	20%	80%	47%	25%	28%
2003	3.2	3.0	5,489	36%	25%	39%	17%	83%	42%	31%	27%
2004	4.0	5.0	6,166	37%	24%	39%	14%	86%	40%	32%	28%
2005	4.5	5.0	6,168	33%	26%	41%	15%	85%	39%	35%	26%
2006	4.5	5.0	5,010	34%	28%	38%	14%	86%	39%	35%	25%
2007	4.6	5.0	4,600	36%	25%	40%	17%	83%	40%	36%	24%
2008	3.8	4.2	2,548	41%	26%	33%	19%	81%	53%	29%	18%
1987-1989	4.2	4.2		37%	30%	34%	34%	66%	58%	24%	18%
1990-1994	3.8	3.3		40%	32%	28%	40%	60%	67%	20%	13%
1995-1999	4.1	4.3		46%	26%	28%	43%	57%	60%	26%	15%
2000-2004	3.3	3.4		38%	24%	37%	22%	78%	44%	28%	29%
2005-2008	4.3	4.8		36%	26%	38%	16%	84%	43%	34%	23%
1976-2008	3.9	3.9		40%	28%	33%	31%	69%	54%	26%	20%
Time trend	-0.412	0.037									
p-value	0.794	0.171									

Table 10
Regression of Initial Maturity of New Bond Issues and Syndicated Loans

This table reports OLS and fixed effects regressions of the logarithm of initial maturity (in years) of new bond issues and syndicated loans by year. In Panel A the sample consists of Mergent Fixed Income Securities Database (FISD) bond issues by firms with Compustat identifiers from 1976 to 2008. In Panel B the sample consists of Loan Pricing Corporation's Dealscan loan facilities by firms with Compustat identifiers from 1987 to 2008. Financial industries (SIC codes 6000-6999) and utilities (SIC codes 4900-4999) are omitted. Refer to Table A.1 in the Appendix for variables definitions. Robust t-statistics adjusted for firm-level clustering are in parentheses.

Panel A: Bond Issues						
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	OLS	FE	OLS	OLS	FE
Size	0.464	0.454	-0.209	0.418	0.454	-0.209
	(3.19)	(3.34)	(-0.82)	(2.99)	(3.34)	(-0.82)
Size squared	-0.243	-0.234	0.419	-0.259	-0.234	0.419
	(-1.65)	(-1.69)	(1.69)	(-1.82)	(-1.69)	(1.69)
Market-to-book	-0.009	0.011	0.001	0.014	0.011	0.001
	(-0.70)	(1.02)	(0.05)	(1.17)	(1.02)	(0.05)
Abnormal earnings	0.030	0.005	0.004	0.016	0.005	0.004
	(1.60)	(0.24)	(0.14)	(0.82)	(0.24)	(0.14)
Asset maturity	0.003	0.000	0.001	0.002	0.000	0.001
	(2.87)	(0.44)	(0.26)	(2.07)	(0.44)	(0.26)
Asset volatility	-0.534	-0.376	-0.109	-0.547	-0.376	-0.109
	(-8.67)	(-5.64)	(-0.98)	(-9.29)	(-5.64)	(-0.98)
Leverage	-0.260	-0.235	-0.227	-0.269	-0.235	-0.227
	(-4.00)	(-3.55)	(-2.07)	(-4.25)	(-3.55)	(-2.07)
R&D	-0.775	-1.024	-0.266	-0.669	-1.024	-0.266
	(-3.46)	(-4.82)	(-0.77)	(-3.01)	(-4.82)	(-0.77)
Term spread	-0.034	-0.029	-0.024	-0.029	-0.029	-0.024
	(-4.63)	(-1.37)	(-0.89)	(-3.74)	(-1.37)	(-0.89)
Time trend				-0.023	-0.033	-0.032
				(-19.15)	(-21.62)	(-11.08)
Intercept	2.358	3.279	3.135	2.898	3.313	3.167
	(50.88)	(24.11)	(23.76)	(54.44)	(24.31)	(23.75)
Issue type dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	No	Yes	Yes	No	Yes	Yes
Industry dummies	No	Yes	No	No	Yes	No
Observations	8280	8280	8280	8280	8280	8280
R-squared	0.052	0.156	0.409	0.117	0.156	0.409

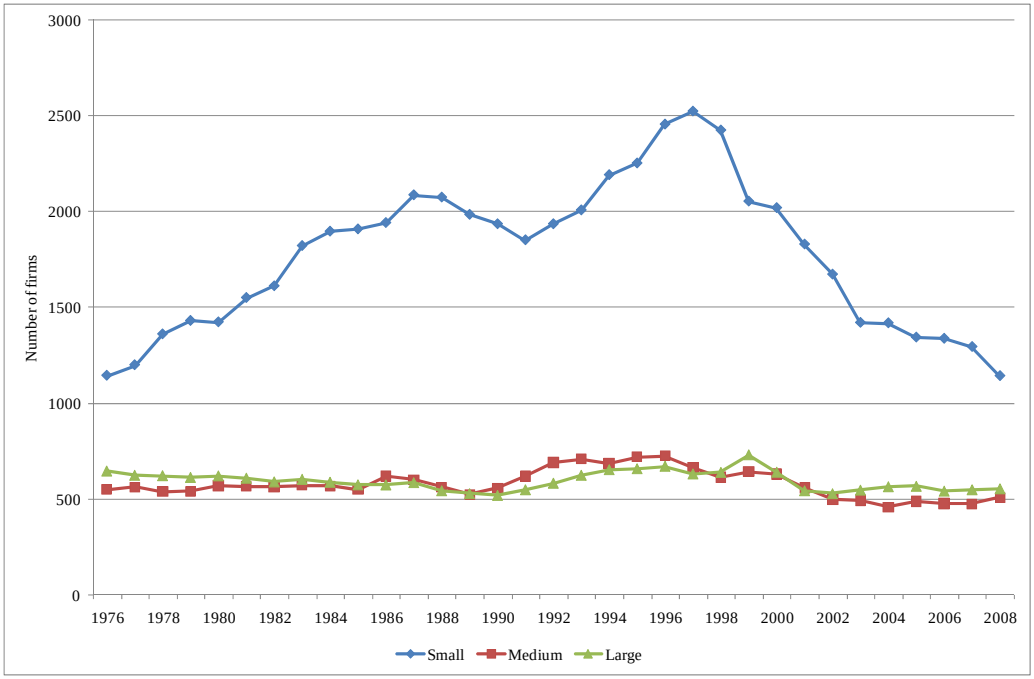
Table 10: continued

Panel B: Syndicated Loans						
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	OLS	FE	OLS	OLS	FE
Size	0.864	0.885	0.630	0.903	0.885	0.630
	(17.06)	(18.10)	(6.51)	(18.25)	(18.10)	(6.51)
Size squared	-0.576	-0.628	-0.365	-0.625	-0.628	-0.365
	(-10.51)	(-11.98)	(-3.60)	(-11.71)	(-11.98)	(-3.60)
Market-to-book	-0.006	-0.014	-0.015	-0.009	-0.014	-0.015
	(-1.76)	(-3.95)	(-2.74)	(-2.68)	(-3.95)	(-2.74)
Abnormal earnings	0.020	0.017	0.008	0.024	0.017	0.008
	(2.29)	(1.98)	(0.78)	(2.86)	(1.98)	(0.78)
Asset maturity	0.001	0.000	-0.002	0.001	0.000	-0.002
	(1.70)	(0.24)	(-2.15)	(1.43)	(0.24)	(-2.15)
Asset volatility	-0.304	-0.232	-0.095	-0.291	-0.232	-0.095
	(-11.22)	(-8.51)	(-2.43)	(-10.85)	(-8.51)	(-2.43)
Leverage	0.168	0.169	0.079	0.206	0.169	0.079
	(6.84)	(7.11)	(2.12)	(8.45)	(7.11)	(2.12)
R&D	-0.588	-0.508	0.492	-0.539	-0.508	0.492
	(-6.63)	(-5.57)	(2.60)	(-6.27)	(-5.57)	(2.60)
Term spread	-0.047	-0.018	-0.013	-0.041	-0.018	-0.013
	(-13.72)	(-1.77)	(-1.27)	(-12.11)	(-1.77)	(-1.27)
Time trend				0.015	0.009	0.005
				(16.44)	(3.96)	(1.68)
Intercept	-0.102	-0.391	-0.250	-0.498	-0.504	-0.305
	(-4.04)	(-4.60)	(-3.96)	(-14.14)	(-4.95)	(-3.44)
Loan purpose and type dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	No	Yes	Yes	No	Yes	Yes
Industry dummies	No	Yes	No	No	Yes	No
Observations	113122	113122	113122	113122	113122	113122
R-squared	0.587	0.607	0.746	0.597	0.607	0.746

Figure 1
Median Debt Maturity and Number of Firms by Size Group

Panel A plots number of firms and Panel B median debt maturity, defined as the percentage of debt maturing in more than three years, of each size group. The breakpoints for the three size groups are the 20th and 50th NYSE percentiles of market capitalization in each year. The sample consists of observations on Compustat firms from 1976 to 2008. Financial industries (SIC codes 6000-6999) and utilities (SIC codes 4900-4999) are omitted.

Panel A: Number of Firms



Panel B: Median Debt Maturity

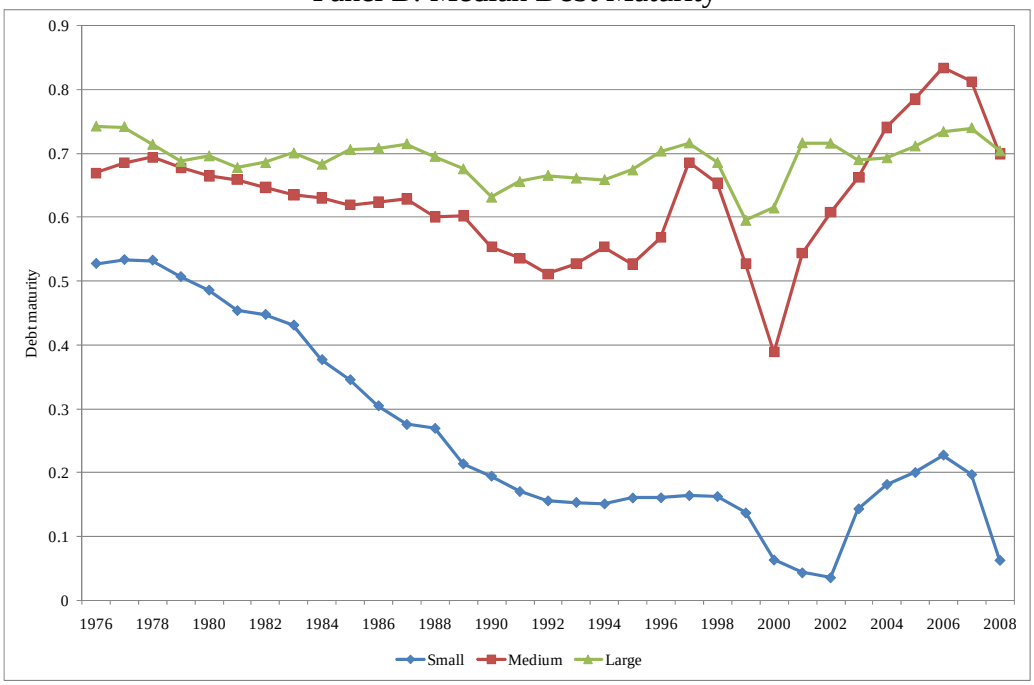
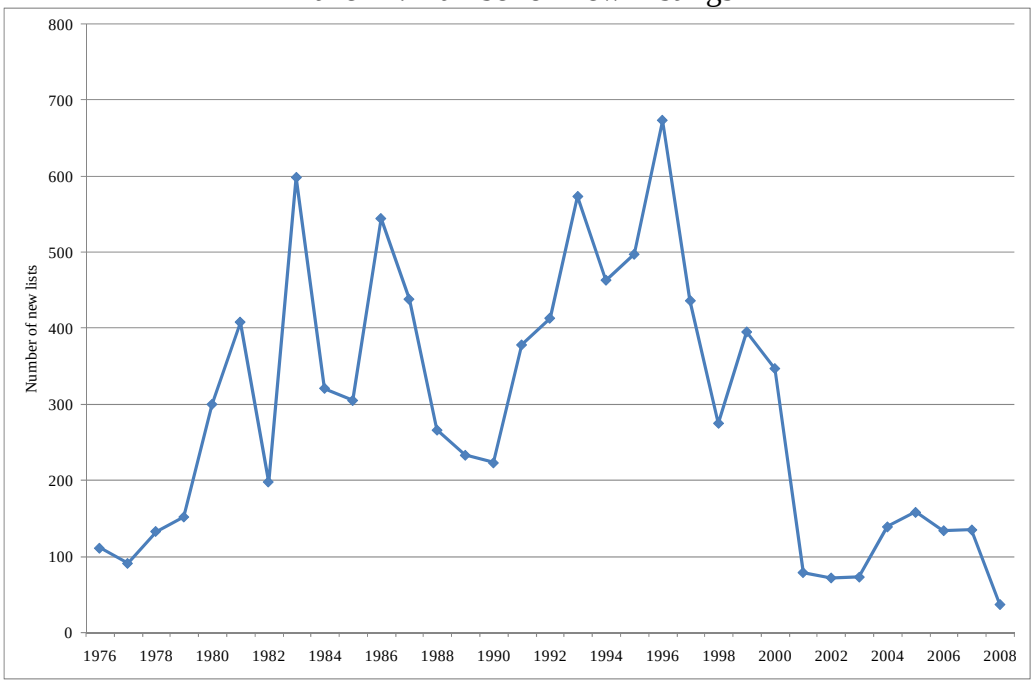


Figure 2
Median Debt Maturity by Listing Group and Number of New Listings

Panel A plots number of new listings and Panel B median debt maturity, defined as the percentage of debt maturing in more than three years, of each listing group. The breakpoints for the three size groups are the 20th and 50th NYSE percentiles of market capitalization in each year. The sample consists of observations on Compustat firms from 1976 to 2008. Financial industries (SIC codes 6000-6999) and utilities (SIC codes 4900-4999) are omitted.

Panel A: Number of New Listings



Panel B: Median Debt Maturity

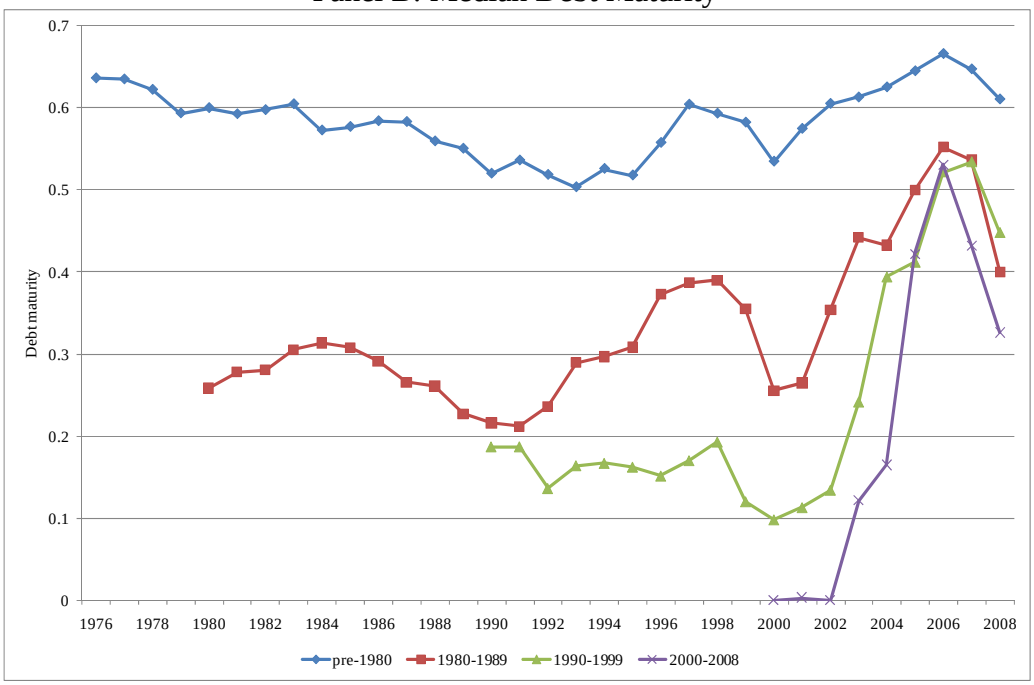


Figure 3
Debt Maturity and Industry Composition

This figure plots the actual median debt maturity, defined as the percentage of debt maturing in more than three years, and the average debt maturity from applying 1976 industry weights to the median debt maturity across industries in each year. The industry breakdown is based on 49 industry groups classification of Fama and French (1997). The sample consists of observations on Compustat firms from 1976 to 2008. Financial industries (SIC codes 6000-6999) and utilities (SIC codes 4900-4999) are omitted.

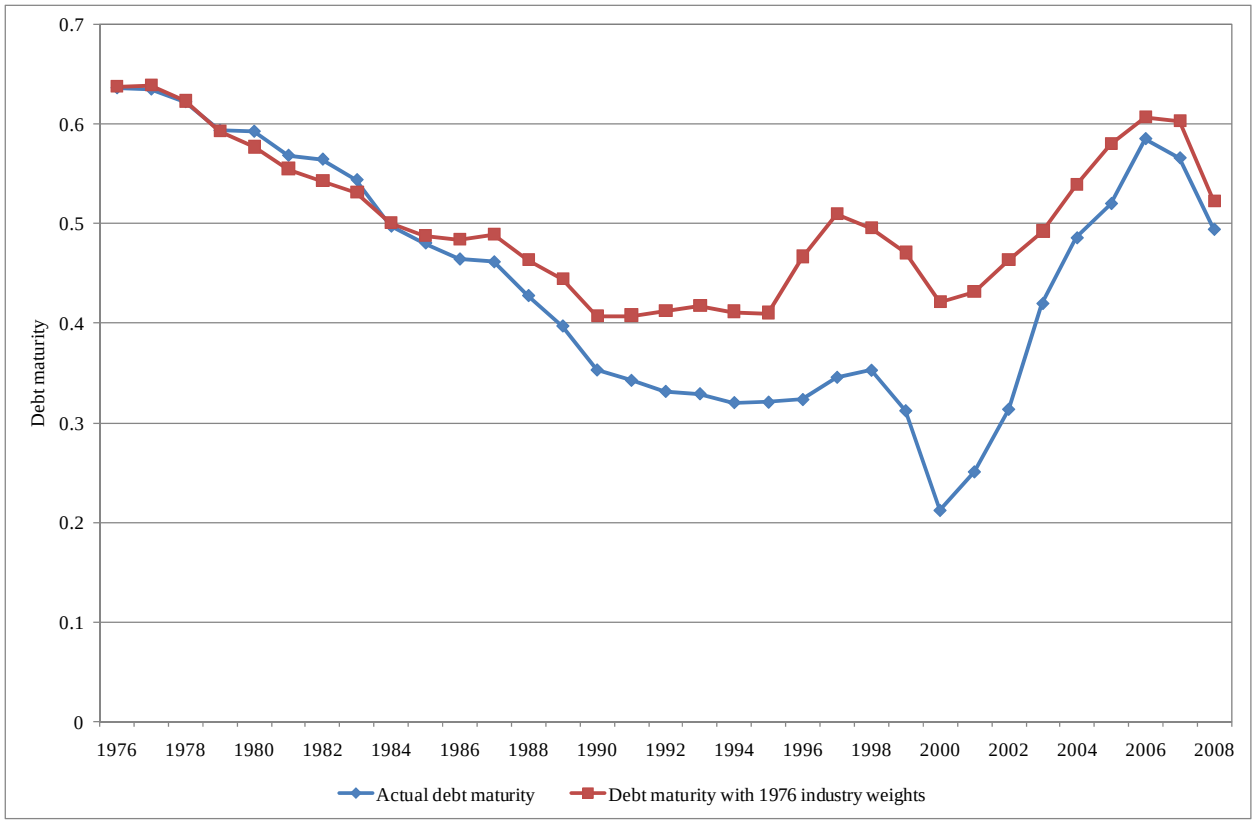
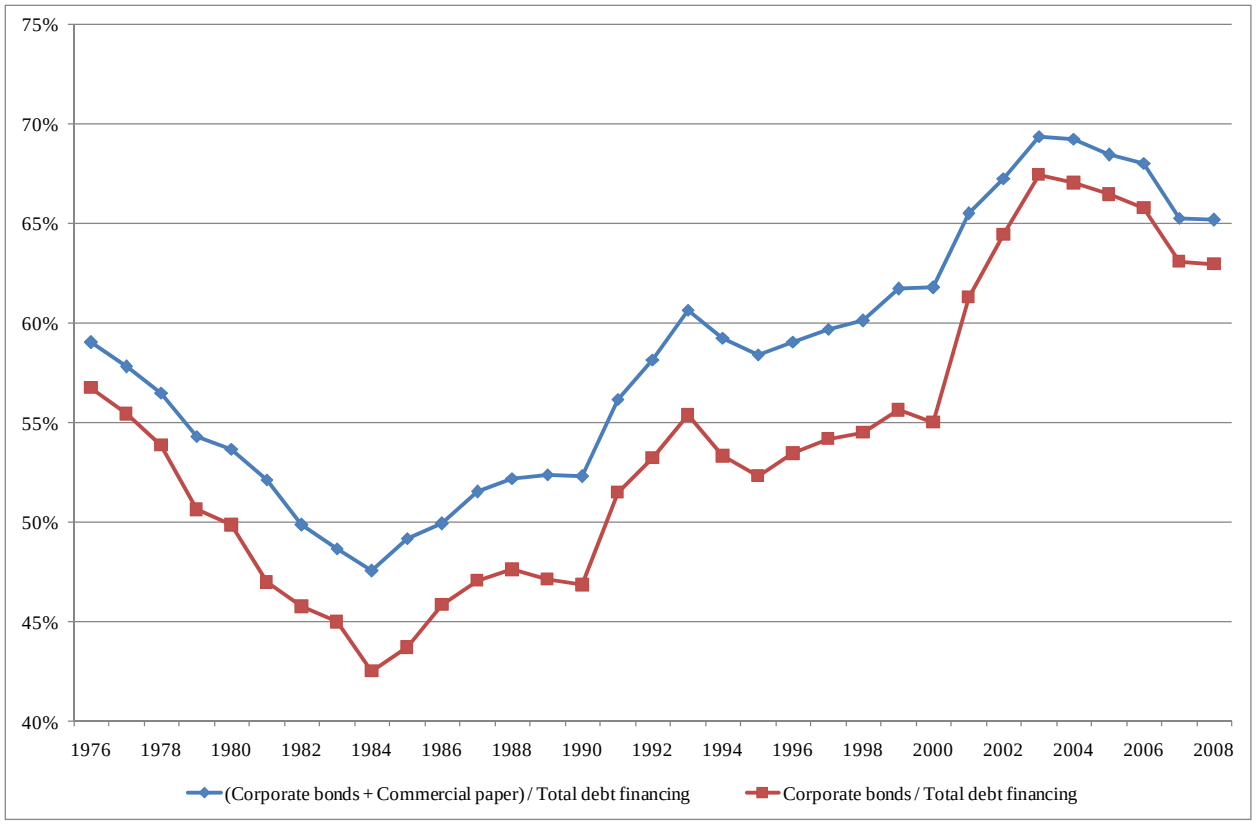


Figure 4
Share of Public Debt in Total Corporate Debt Financing

This figure plots the volume of public debt as a fraction of total debt financing by nonfarm nonfinancial corporate debt compiled from annual Flow of Funds Accounts (Federal Reserve) data from 1976 to 2008. Total debt financing is the sum of bank debt and public debt. Bank debt is the sum of the Flow of Funds balance sheet components Other Loans and Advances and Banks Loans Not Elsewhere Classified. Public debt is the sum of the Flow of Funds balance sheet components Commercial Paper Issued by Nonfinancial Firms and Corporate Bonds.



Appendix

Table A.1
Variable Definitions

Variable	Definition
Leverage	Ratio of total debt (DLTT) to book value of assets (AT)
Debt maturity 1	Ratio of total long-term debt (DLTT) to book value of total debt (TD)
Debt maturity 2	Ratio of total long-term debt (DLTT) minus debt maturing in two years (DD2) to book value of total debt (TD)
Debt maturity 3	Ratio of total long-term debt (DLTT) minus debt maturing in two and three years (DD2+DD3) to book value of total debt (TD)
Debt maturity 4	Ratio of total long-term debt (DLTT) minus debt maturing in two, three and four years (DD2+DD3+DD4) to book value of total debt (TD)
Debt maturity 5	Ratio of total long-term debt (DLTT) minus debt maturing in two, three, four and five years (DD2+DD3+DD4+DD5) to book value of total debt (TD)
Market capitalization	Number of shares outstanding (CSHO) times stock price at the fiscal year-end (PRCC_F)
Size	Percent of NYSE firms that have the same or smaller market capitalization
Market-to-book	Ratio of market value of assets (AT+CSHOxPRCC_F-CEQ) to book value of total assets (AT)
Abnormal earnings	Ratio of difference between the income before extraordinary items, adjusted for common/ordinary stock (capital) equivalents (IBADJ) for time t and t-1 over the market value of equity used to calculate earnings per share (PRCC_Fx CSHPRI)
Assets maturity	Ratio of property, plant and equipment (PPEGT) over depreciation and amortization (DP) times the proportion of property, plant and equipment in total assets (PPEGT/AT), plus the ratio of current assets (ACT) over the cost of goods sold (COGS) times the proportion of current assets in total assets (ACT/AT)
Assets volatility	Standard deviation of stock return during the fiscal year times market value of equity (CSHOxPRCC_F) divided by market value of assets (AT+CSHOxPRCC_F-CEQ)
R&D	Ratio of research and development expenditures (XRD) to book value of assets (AT)
Age	Number of years between fiscal year (FYEAR) and CRSP listing year (LISTYEAR)
CAPEX	Ratio of capital expenditures (CAPX) to book value of assets (AT)
Asset growth	Book value of assets (AT) in year t over book value of assets in year t-1 minus one
PPE	Ratio of net property, plant and equipment (PPNT) to book value of assets (AT)
Rating dummy	Dummy variable that takes the value of one if a firm has a S&P domestic long-term issuer credit rating (SPLTICRM)
Investment grade dummy	Dummy variable that takes the value of one if a firm has a credit rating BBB- or above
Speculative grade dummy	Dummy variable that takes the value of one if a firm has credit rating BB+ or below
S&P 500 dummy	Dummy variable that takes the value of one if a firm is a member of the S&P 500 index (CPSPIN)
NYSE dummy	Dummy variable that takes the value of one if a firm is a listed on the NYSE (EXCHG)
Institutional ownership	Number of shares held by institutions divided by the number of shares outstanding (Thomson CDA/Spectrum 13F Holdings)

Table A.1: continued

Variable	Definition
Analyst coverage	Number of analysts covering a firm (NUMEST)
Dispersion of analyst forecasts	Standard deviation of analyst forecasts (STDEV x 100) over book value of total assets (AT)
Amihud illiquidity	Average of the ratio of the absolute stock return over the dollar volume (Amihud (2002))
PIN	Probability of information-based trading, defined as the ratio of the expected number of informed trades over the expected total number of trades (Easley, Hvidkjaer, and O'Hara (2002))
Roll effective spread	Square root of minus of autocovariance of log price change estimated over all trading days in the year; variable is set to zero if the autocovariance is negative (Roll (1984))
Positive net income	Dummy variable that takes the value of one if the firm has positive net income (NI)
Return on assets	Ratio of earnings before interest, taxes, depreciation and amortization (EBITDA) to book value of total assets (AT)
Dividend dummy	Dummy variable that takes the value of one if the firm pays dividends (DVC) and zero otherwise
Cash	Ratio of cash and short-term investments (CHE) over book value of total assets (AT)
Taxes	Ratio of total income taxes (TXT) over the pretax income (PI)
Governance index	Governance index of Gompers, Ishii, and Metrick (2003), which is based on 24 antitakeover provisions (IRRC)
Managerial ownership	Number of shares held by top five managers divided by the number of shares outstanding (ExecuComp)
Board independence	Ratio of number of independent directors to board size (IRRC)
Term spread	Difference between month-end yield on ten-year government bonds and month-end yield on one-year government bonds (Federal Reserve)
Short term rate	Month-end yield on one-year government bonds (Federal Reserve)
Government share	Share of government debt and coupon payments with maturity of one year or more (Greenwood, Hanson, and Stein (2010))