DEBT MATURITY STRUCTURE AND FORWARD-LOOKING DISCLOSURE

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ABSTRACT

This paper examines how corporate debt maturity relates to forward-looking disclosures. I find that higher levels of short-maturity debt are associated with increases in forward-looking disclosures, consistent with firms fulfilling the demand for information when faced with increased uncertainty due to refinancing risks. My results are robust to a gamut of measures of forward-looking disclosures. To address endogeneity concerns, I conduct instrumental variables estimations with three different choices of instruments and also estimate a simultaneous equations model. Overall, my results consistently show that corporate debt maturity structure shapes firms' disclosures.

Debt Maturity Structure and Forward-looking Disclosure

I. Introduction

This paper examines whether forward-looking disclosures are related to a firm's debt maturity structure. Short-debt maturity exposes a firm to refinancing risk (Childs et al. 2005; Diamond 1991; 1993; Sharpe 1991), leading to frequent refinancing and renegotiation (Flannery 1986; Dangl and Zechner 2020), higher costs of capital (Gopalan et al. 2014; Hu 2010), and more equity risk (Friewald et al. 2022; Gonçalves 2021; He and Xiong 2012a).[1] While empirical research has also shown that maturity structure is related to financial reporting behavior such as earnings quality and accounting conservatism (e.g. Gupta et al. 2008; Khurana and Wang 2015), it has paid little attention to how short-debt maturity influences information communication between managers and outsiders. In this paper, I focus on analyzing the impact of short debt maturity, a reflection of firms' potential needs for financing, on managers' decisions to voluntarily disclose forward-looking information.

Forward-looking disclosures constitute an important channel through which managers communicate their private information to the capital market. Unlike mandatory disclosures, however, forward-looking information signals a firm's prospects and is not subject to specific reporting guidelines. Extant research documents that forward-looking disclosure improves access to public capital markets at a lower cost (Ajinkya and Gift 1984; Amihud and Mendelson 1988; Baginski and Rakow 2012; Botosan and Plumlee 2000; Diamond and Verrecchia 1991; Francis et al. 2005; Frankel et al. 1995; Lang and Lundholm 1993; 2000; Sengupta 1998). While many of these studies focus on firms' actual

[1] Refinancing risk is the risk that a solvent firm is trapped by the difficulty of refinancing maturing debt (Diamond 1991).

financing activities to capture their financing needs, I argue that short-debt maturity creates a need for capital in the near term, thereby influencing the decision to voluntarily disclose more forward-looking information.

Debt maturity structure can increase the demand for forward-looking disclosure for at least two reasons. First, the immediacy of a firm's debt refinancing needs heightens the risk of credit rationing and inefficient liquidation (Diamond 1991; Sharpe 1991). The increased risk of liquidation created by short-term borrowing can result in frequent refinancing and renegotiation (e.g., Flannery 1986; Titman 1992) and higher costs of capital (e.g., Froot et al. 1993; Gopalan et al. 2014). As a result, firms are likely to disclose more forward-looking information to attract potential capital providers. Second, because refinancing risk maps into equity risk, exposing equity to higher systematic risk (Gonçalves 2021; He and Xiong 2012a), and resulting in shareholders charging firms higher risk premia for short-term compared to long-term leverage (Friewald et al. 2022), firms are likely to make more disclosures in response to the uncertainty-driven demands from the equity market. The prediction is that there is a positive association between the proportion of short-debt maturity and forward-looking disclosure.

While this prediction is plausible, there are several reasons why it may not be borne out empirically. First, holding short-maturity debt reduces agency costs of debt overhang and limits managerial discretion by subjecting management to more frequent scrutiny by debt market participants such as underwriters, rating agencies, and banks at the stage of refinancing (Barclay and Smith 1995; Barnea et al. 1980; Benmelech 2006; Leland and Toft 1996; Rajan and Winton 1995; Stulz 2000). If the supervision of short-maturity debt mitigates stakeholders' concerns about agency conflicts, the demand for discretionary

disclosure may go down. Furthermore, short-debt maturity improves a firm's financial flexibility (Dangl and Zechner 2020; DeMarzo and He 2020) and discourages managerial entrenchment (Benmelech 2006), which could lower discretionary disclosure. To the extent these counterarguments arguments hold, they would work against the findings supporting my prediction.

I test my prediction linking debt maturity structure to forward-looking disclosures by using 51,719 firm-year observations belonging to 7,331 firms for the period 1997 to 2020. After controlling for an array of variables identified in prior studies to affect disclosure decisions, I find that both the likelihood and the frequency of management earnings forecasts are positively related to the proportion of short-maturity debt. In terms of the economic magnitude of the effect of maturity structure on earnings forecast disclosure, for an inter-quartile change in the proportion of short-maturity debt, the marginal change in the frequency of management forecast is about 10% of its mean value. When I further examine the information content of these forecasts, I find that as the proportion of short-maturity debt increases, the informativeness of the earnings forecasts, as measured by the timeliness, precision, and specificity of the disclosures, improves. I also find that a larger proportion of short-maturity debt discourages the communication of bad news through earnings forecasts.

I also examine whether and how debt maturity would affect different channels through which management communicates forward-looking information. With an R program, I download firms' 10-K and 8-K disclosures from the Securities and Exchange Commission (SEC)'s Electronic Data-Gathering, Analysis, and Retrieval (EDGAR) system and extract keywords to construct alternative proxies of forward-looking

disclosures based on 8-K filings, management discussion and analyses (MD&As), and earnings press releases. Tests based on these alternative measures suggest that short-debt maturity also motivates firms to disclose more forward-looking information through channels beyond earnings forecasts.

The predicted positive relation between the proportion of short-maturity debt and forward-looking disclosures relies on two arguments: (1) short-debt maturity creates potential needs for financing and (2) forward-looking disclosure facilitates capital raising by reducing information asymmetry and the market's uncertainty regarding a firm. To disentangle how the potential needs of firms for financing map into ex-post financing and the disclosure decision, I partition the sample into subsamples based on firms' ex-post external financing activities and find that firms issuing equity and debt one-year ahead are more likely to issue management forecasts. The result is stronger in the subsample of firms that access the equity market and public debt market. These findings indicate that the increase in forward-looking disclosures is motivated by the demand for subsequent capital raising, especially in the public capital market, as firms hold a larger proportion of short-maturity debt.

I next investigate how the short-debt maturity-forward-looking disclosure relation varies cross-sectionally. Because the external financing channel drives firms with more short-term debt to undertake more forward-looking disclosure, I argue that firms disclose more when they are financially constrained. Accordingly, I expect the impact of short-debt maturity to be higher for financially constrained firms. Consistent with my prediction, I find that the positive relation of short-maturity debt with both the frequency and the likelihood of management earnings forecasts is stronger among financially constrained

firms, suggesting that firms with insufficient financial slack to fund ongoing and promising projects exhibit greater increases in forward-looking disclosure when they hold more short-maturity debt. Taken together, the evidence shows how short-debt maturity, as a refinancing risk factor, interacts with firms' demands for external capital in influencing firms' decisions to issue earnings forecasts.

Importantly, the baseline results are subject to the caveat that both debt maturity structure and forward-looking disclosures are decisions endogenous to the firms in question. Critically, the factors that affect the debt maturity structure might also affect the decision to make forward-looking disclosures. In a similar vein, changes in disclosure may be endogenous to economic conditions facing firms (Beyer et al. 2010).[2] To mitigate such concerns, my empirical strategy exploits instrumental variables estimation using three different choices of instrument. First, I use the prior debt maturity structure as an instrument for the current maturity structure because the maturity structure in the past is correlated with the current maturity structure (Almeida et al. 2012) but is unlikely to affect current disclosure incentives. Therefore, the prior maturity structure is likely to solely affect disclosure indirectly through current maturity. Second, I use the size of the Federal Reserve's balance sheet as a proxy for the intensity of quantitative easing policies (Cortes et al. 2022). The liquidity injection stemming from the Fed's QE lowers long-term real interest rates which, in turn, discourages the use of short-term debt. Third, building on the arguments that (1) military spending represents increases in government deficits that are exogenous to business cycles, but fiscally relevant to raise the probability of government

[2] My tests are less prone to such a concern because the debt maturity structure of a firm is the cumulative result of debt financing decisions made over the past several years (Almeida et al. 2012). Therefore, a firm's debt maturity structure is less likely to be solely determined by current business fundamentals or market situations (Jung et al. 2021).

bond issuance (e.g. Silva 2021) and (2) government bonds and corporate bonds are close substitutes (Demirci et al. 2019; Greenwood et al. 2010), I use military expenditures as an instrument for the supply of long-term corporate debt. Defense expenditures increase the government's demand for capital, which in turn can crowd out long-term corporate debt and force firms to use more short-term debt. Admittedly, whereas each of the choices of instrumental variables have its advantages and disadvantages, I rely on the consistency across the results obtained with the three different choices to provide a unified body of evidence that plausibly dispels endogeneity concerns.

To conclude my empirical analysis, I employ a simultaneous equations framework in which I control for the determinants of disclosure decision and debt maturity structure and assume these two variables to be jointly determined (Harford et al. 2014; Khurana and Wang 2015; Nikolaev 2010). My results hold after accounting for the endogeneity of short-maturity debt using a simultaneous equations framework. Taken together, the findings suggest that shortened debt maturity increases corporate forward-looking disclosure.

My study contributes to the literature in several ways. First, it adds to the ongoing debate regarding whether creditor monitoring can replace investor monitoring. While previous evidence suggests that intensified lender monitoring may serve as a substitute for shareholder supervision in severe circumstances like covenant violation (Vashishtha 2014), this paper reveals a different perspective. It finds that firms with short-debt maturity, despite benefiting from enhanced creditor monitoring, also increase their forward-looking disclosure to facilitate shareholder monitoring. This finding is particularly intriguing and contributes to the existing literature as it contradicts previous evidence that suggests substitutability of monitoring between creditors and investors. It is worth noting that even

though creditors effectively monitor short-debt firms (Dang et al. 2017), investors still require disclosure for their own monitoring purposes.

Second, it extends the literature that examines the consequences of debt maturity choices. Prior literature finds consistent evidence that short-maturity debt exposes firms to refinancing risk (Almeida et al. 2012; Choi et al. 2021; Diamond 1991; 1993; Sharpe 1991) and that firms raise the level of cash holding (Harford et al. 2014) in response to that risk. Maintaining a high level of unused cash is costly since there are valuable opportunities forgone. My results show that the firms adjust their forward-looking disclosure practices when they face the risk of refinancing maturing debt, suggesting that refinancing risk is inherent in short-maturity debt and can affect firms' disclosure behavior.

Third, it contributes to the literature examining how forward-looking disclosure is affected by financing activities. Early studies in this area focus on the equity market and identify equity holders as key players in demanding management earnings forecasts (Baginski and Rakow 2012; Baiman and Verrecchia 1996; Diamond and Verrecchia 1991; Dye 1985; Fishman and Hagerty 1989; Lewellen and Shanken 2002). Recent studies examine how lenders affect forward-looking disclosures through the financing channel (Balakrishnan et al. 2012; Chen and Vashishtha 2017; Golshan 2021; Leuz and Schrand 2009; Lo 2014). Debt maturity structure, unlike the financing actions taken by firms, reflects a firm's potential need for capital. I complement these studies by building on the argument that the demand for additional capital to roll over debt closer to maturity incentivizes firms to seek funding from alternative providers of capital in public markets, who rely heavily on disclosure to overcome information disadvantages (Armstrong et al. 2010; Hirst et al. 2008). Furthermore, the frequent scrutiny by debt market participants

during debt negotiations can affect stakeholders' perceptions of the information environment and agency conflicts. The evidence in my study shows that firms' debt maturity choices also shape their disclosure strategy.

Finally, this paper adds to the growing literature in accounting on how the debt maturity structure interacts with firms' information production. While extant studies on debt maturity structure focus on the properties of mandatory disclosure, such as earnings quality (Gupta et al. 2008) and accounting conservatism (Khurana and Wang 2015), my study provides evidence that firms also actively produce forward-looking information when they face the pressure to refinance maturing debt. Forward-looking disclosure differs from mandatory reporting in that managers have the discretion on whether and how to signal a firm's prospects. By providing evidence that debt maturity affects managers' decisions to voluntarily issue earnings forecasts, my study complements prior studies examining the effects of debt maturity structure on financial reporting behavior.

The remainder of the paper proceeds as follows. Section 2 discusses the related literature and develops testable hypotheses. Section 3 explains the research design and the data. Section 4 presents the empirical results. In section 5, I conduct a battery of external validity tests. Section 6 discusses the results of additional analyses and Section 7 concludes.

II. Background and Hypothesis Development

Forward-Looking Disclosure as a Channel of Management Communication

Extant literature demonstrates that forward-looking disclosures can reduce information asymmetry and agency conflicts (Baiman and Verrecchia 1996; Diamond and Verrecchia 1991; Dye 1985; Fishman and Hagerty 1989). Based on a survey of corporate financial officers, Graham et al. (2005) report that four out of five respondents agree or strongly agree with this information risk argument for their voluntary disclosure decisions. Several empirical studies also document that voluntary dissemination of management earnings forecasts lessens information asymmetry (Ajinkya and Gift 1984; Coller and Yohn 1997; Güntay and Hackbarth 2010; Kasznik and Lev 1995; Leuz and Verrecchia 2000; Lu et al. 2010), lowers investor uncertainty (Armstrong et al. 2010; Lewellen and Shanken 2002), reduces the cost of capital (Baginski and Rakow 2012; Botosan 1997; Sengupta 1998), improves firms' stock market performance (Hirst et al. 2008), and facilitates new capital offerings (Frankel et al. 1995; Lee 1981; Lo 2013; Ruland et al. 1990).

Forward-looking disclosure can provide valuable information to not only shareholders but also creditors, including lenders with private access to borrowing firms. Theoretical studies show that lenders' ability to estimate a borrower's future cash flows reduces uncertainty about the borrower's default risk and facilitates debt contract design (Cetin et al. 2004; Duffie and Lando 2001). There is also empirical evidence showing that earnings forecasts significantly reduce the cost of debt, as measured by credit default swap spreads (Shivakumar et al. 2011) and the cost of bank loans (Gao et al. 2022; Hsieh et al. 2018). Demerjian et al. (2020) demonstrate that, since the information collected from

private communication with borrowers can hardly be verified, banks corroborate their private information with forward-looking disclosure to confirm their screening conclusions. In short, a credible, expanded disclosure policy reduces information risk and hence contributes to a lower cost of debt and equity capital.

Prior Research on Debt Maturity

A separate stream of research focuses on debt maturity structure, an important aspect of firms' financing policies. For one thing, several studies on debt maturity structure highlight the fact that short-debt maturity magnifies refinancing risk, which, in turn, affects the decisions the borrower makes. Whenever a lender underestimates the continuation value of a borrower or a project, the lender would refuse to roll over the debt, leading to credit rationing or even an inefficient liquidation of the borrower (Diamond 1991; Sharpe 1991) and increasing the sensitivity of financing costs to new information (Diamond 1993). Empirical evidence suggests that the threats of refinancing risk force firms to reduce their capital investments (Almeida et al. 2012; Choi et al. 2021) and increase the level of cash holding (Harford et al. 2014).

Increased risk of liquidation created by short-term borrowing, in turn, leads to frequent refinancing and renegotiation, higher costs of capital, and more equity risk. A higher proportion of short-maturity debt can increase the demand for refinancing and frequent renegotiations in the near future and result in higher flotation costs (Dangl and Zechner 2021; Flannery 1986; Titman 1992), opportunity costs of management effort in handling the transactions (Brunnermeier and Yogo 2009), and reinvestment risks (Barclay and Smith 1995). Moreover, firms holding a large portion of short-maturity debt are vulnerable to changes in economic conditions that could significantly affect the interest

rates on their loans. In the presence of capital market frictions, firms would be forced to refinance at a higher interest rate (Chen et al. 2021; Froot et al. 1993; Gopalan et al. 2014; He and Xiong 2012a; Hu 2010). Refinancing risk can also map into equity risk. He and Xiong (2012a) show that debt-related risks affect firms' risk exposures differently: while short-term debt exposes shareholders to debt refinancing risk, long-term debt does not, since the cost incurred during refinancing a maturing debt would be borne by shareholders, the residual claimants, in the near term. By demonstrating that shareholders demand higher risk premia for short-term compared to long-term leverage, Friewald et al. (2022) provide empirical evidence that a firm's intensity of short-term debt, rather than long-term leverage, exposes its equity to systematic risk.

Despite the adverse consequences associated with short-maturity debt, prior research also highlights its benefits. Holding short-maturity debt reduces agency costs of debt overhang and limits managerial discretion by subjecting management to scrutiny at the time of debt refinancing (Barclay and Smith 1995; Barnea et al. 1980; Benmelech 2006; Leland and Toft 1996; Rajan and Winton 1995; Stulz 2000). Compared with the value of long-maturity debt, the value of short-maturity debt is less sensitive to firms' private information and to shifts in the value of existing projects (Barnea et al. 1980). Therefore, short-maturity debt mitigates the asset substitution problem by reducing managers' incentives to undertake risk-shifting investments (Myers 1977; Barclay and Smith 1995). The literature on how short-maturity debt harnesses managerial discretion dates back to Myers (1977), who suggests that short-maturity debt subjects managers to more frequent monitoring, which can mitigate underinvestment problems and prevent managers from undertaking risk-shifting investments. Consistent with this argument, Johnson (2003) finds

that short-maturity debt attenuates the negative relation between leverage and growth opportunities. Furthermore, short-maturity debt also improves a firm's financial flexibility (for example, Dangl and Zechner 2020; DeMarzo and He 2020) and reduces managerial entrenchment (Benmelech 2006).

Debt maturity structure has also received attention in accounting research, where the topic of interest is how debt maturity structure affects firms' financial reporting behavior. Building on the theoretical work of Diamond (2004), Gupta et al. (2008) find that the incentives for upward earnings management increase in the proportion of short-maturity debt since the managers want to avoid further lender enforcement triggered by the bad news. Khurana and Wang (2005) argue that to the extent short-maturity debt mitigates information asymmetry and suboptimal investment problems and subjects the borrowers to more external monitoring when it comes up for renewal, the presence of short-maturity debt should lower the debt-contracting demand for accounting conservatism. Consistent with this prediction, the authors find that firms with more short-maturity debt exhibit less accounting conservatism. Wang (2020) finds a substitutive relation between firms' use of segment disclosures and short-maturity debt in mitigating agency issues arising from international operations. Despite the research investigating the impact of debt maturity structure in financial reporting decisions, the influence of short-debt maturity on forward-looking decisions remains largely unexplored. In this paper, I seek to provide empirical evidence on the relation between short-maturity debt and forward-looking disclosures.

Hypotheses Development

It is possible that the market participants perceive short-maturity debt to reduce the agency costs of debt because the scrutiny from the debt market at the stage of refinancing

and renegotiation would reduce agency costs of debt overhang and limit managerial discretion (for example Barclay and Smith 1995; Barnea et al. 1980; Benmelech 2006; Leland and Toft 1996). Existing literature also documents the substitutable monitoring between creditors and investors (Vashishtha 2014). In such a scenario, other stakeholders may choose not the duplicate monitoring and decrease the demand for forward-looking disclosure.

While such arguments are plausible, it may not necessarily be the case. Creditor monitoring and investor monitoring are two distinct forms of oversight in financial markets, and they serve different purposes. While there may be some overlap in their objectives, they are not direct substitutes for each other. Furthermore, refinancing risk magnifies firms' exposure to uncertainty and heightens the importance of access to the capital market. The need to roll over or renegotiate maturing debt motivates firms to search for alternative funding sources, which creates motivation for firms to disclose more (Lee 1981; Lo 2013; Ruland et al. 1990; Frankel et al. 1995). Forward-looking disclosure can also facilitate refinancing and renegotiations by reducing the cost of capital (Baiman and Verrecchia 1996, Coller and Yohn 1997; Leuz and Verrecchia 2000; Sengupta 1998; Verrecchia 1991) and strengthening firms' bargaining power with lenders (Garleanu and Zwiebel 2009; Gorton and Kahn 2000; Roberts and Sufi 2009). In other words, firms can satisfy the uncertainty-driven demand for information from capital providers by disclosing forward-looking information (Armstrong et al. 2010). Consequently, there is an increase in managers' willingness to voluntarily disclose more when there is more short-maturity debt outstanding. Moreover, Harford et al. (2014) argue that firms hold more cash to mitigate refinancing risks arising from holding more short-maturity debt. Given that holding cash

is costly (e.g. Denis and Sibilkov 2010; Dittmar et al. 2003; Harford 1999), firms will seek access to different sources of capital to reduce refinancing risk. The above arguments lead to my first hypothesis (stated in the null form) as follows:

H1. There is no association between the proportion of short-maturity debt and forward-looking disclosure, ceteris paribus.

Next, I investigate how the relation between the proportion of short-maturity debt and forward-looking disclosure varies cross-sectionally. The prediction of the positive relation between short-debt maturity and forward-looking disclosure is built on an external financing channel argument as to why firms with more short-term debt will undertake more forward-looking disclosure. Frankel et al. (1995) posit and find that firms voluntarily disclose more to obtain access to finance at a lower cost of external capital. However, access to lower-cost external financing is largely beneficial for financially constrained firms (i.e., firms with limited internal resources) (Korajczyk and Levy 2003; Lamont et. Al. 2001; Baker et al. 2003). Indeed, prior studies have shown that financial constraints produce real effects. For example, Baker et al. (2003) find that firm investments are sensitive to stock prices, particularly for financially constrained firms. It is also plausible that in a finically constrained firm, a short debt maturity is more likely to trigger closer debtholder monitoring, leading to less demand for disclosure. The discussion above leads to the second hypothesis (stated in the alternative form) as follows:

H2. Any association between the proportion of short-maturity debt and forward-looking disclosure is more pronounced for financially constrained firms, ceteris paribus.

III. Research Design

Test of Hypothesis 1

To test H1, which predicts a positive relation between the proportion of short-maturity debt and forward-looking disclosure, I estimate the following model:

$$DISCLOSURE_{i,t} = \beta_0 + \beta_1 SMD_{i,t} + \beta_2 Controls_{i,t} + \gamma_{j,t} + \delta_t + \varepsilon \quad (1)$$

where i and t denote firm and year, respectively. $DISCLOSURE_{i,t}$ measures firm i's forward-looking disclosure during the fiscal year t. $SMD_{i,t}$, the test variable, is the proportion of total debt maturing within three years at the end of fiscal year t. $Controls_{i,t}$ is an array of control variables identified in prior research as determinants of forward-looking disclosures. I include industry fixed effects ($\gamma_{j,t}$) to control for cross-industry differences in the disclosure practices and year fixed effects (δ_t) to absorb time-varying factors common to all firms, such as fluctuations in the macroeconomic condition. I use firm and year standard errors to control for cross-sectional and time-series dependence in the data.

In terms of H1, the coefficient β_1 is of interest. It captures the effect of debt maturity structure on a firm's forward-looking disclosure. Under H1, firms holding a large proportion of short-maturity debt have incentives to reduce information asymmetry, thereby increasing the incidence and the likelihood of forward-looking disclosures. Therefore, I expect β_1 to be positive.

Dependent Variable

To test Hypothesis 1, which predicts the attention costs of a new client results in adverse effects to The dependent variable, $DISCLOSURE_{i,t}$, is $NUMMF_{i,t}$ or $DMF_{i,t}$. $NUMMF_{i,t}$ captures the frequency of management earnings forecasts issued in a year; it is measured as the number of management earnings forecasts issued during the fiscal year.

$DMF_{i,t}$ is the incidence of management forecasts in a year; it equals one if the firm issues at least one management forecast in the year, and zero otherwise.[3]

Following prior research, I first measure forward-looking disclosure using management earnings forecasts for several reasons. First, management earnings forecasts provide valuable information to investors and creditors. Prior empirical research documents significant market price reaction to earnings forecasts (De Franco et al. 2009; Pownall et al. 1993; Shivakumar et al. 2011) and lower information asymmetry as well as the cost of both equity and debt associated with the issuance of earnings forecasts (Baginski and Rakow 2012; Dhaliwal et al. 2011). Second, managers have discretion over forward-looking disclosure, which enables them to adjust the informativeness of the forecasts (e.g., the difference between forecasts and actual earnings outcomes) and the level of resource commitment (e.g., forecast specificity and timeliness) in issuing earnings forecasts when managers face changes in incentives. Last, management earnings forecasts are comparatively homogenous, compared with other types of forward-looking disclosures such as SEC filings, MD&A reports, and conference calls, and have frequent occurrences in recent years (Gong et al. 2013). Overall, prior research suggests that management earnings forecasts are an important measure to capture firm forward-looking disclosure activities. In section 4.5, I further discuss the impact of debt maturity on alternative

[3] I use a linear probability estimator instead of a nonlinear estimation, such as logit or probit, because of the "complete or quasi-complete separation problem" present in my data for firms that never take on a value of 1 for issuance of a management earnings forecasts; this makes it impossible to compute the maximum likelihood values for such firms. Nevertheless, for dichotomous dependent variables, OLS coefficient estimates remain unbiased, especially in large samples (Wooldridge 2002). In a similar vein, Angrist and Pischke (2010) argue that the asymptotic properties and flexibility of linear models often produce more robust results than nonlinear models. In addition, Greene (2004) suggests that linear models can accommodate a large number of industry- and year-fixed effects with fewer estimation biases than nonlinear models. The results are similar if I use Logit regression, Probit regression, and Poisson regression.

measures of forward-looking disclosures based on 8-K filings, MD&A, and earnings press releases.

Test Variable

The test variable, $SMD_{i,t}$, represents the extent of short-maturity debt in a firm's capital structure. Following prior studies (e.g. Barclay and Smith 1995; Johnson 2003), I calculate *SMD* as the fraction of total debt that matures in three years or less. As pointed out by Barclay and Smith (1995), measuring debt maturity structure with the proportion of debt maturing in three years is an arbitrary decision. However, other more complex proxies of debt duration using data for debt due between one to five years would still be the linear combination of the amount of total debt maturing in one through five years.[4] To examine the sensitivity of results to my choice of debt maturity, I use the percentage of debt due in one, two, four, or five years or measure debt maturity as alternative proxies for short-term debt, and my inferences are qualitatively similar to those reported using debt due in three years.

Control Variables

I include an array of firm characteristics that are likely to affect management forecasting behavior. In my model, I include $LSIZE_{i,t}$ (the natural logarithm of market value) and $MB_{i,t}$ (market value divided by book value) because larger firms and growth firms are more likely to issue management forecasts (Brochet et al. 2011; Kasznik and Lev 1995). I also include one performance measure ($ROA_{i,t}$), because firms may be reluctant to issue management forecasts when experiencing poor performance (Miller 2002). Prior studies

[4] Furthermore, the evidence provided by robustness tests suggests that the results remains qualitatively similar if I use the percentage of debt due in one, two, four, or five years as alternative proxies for debt maturity.

suggest that firms in more volatile operating environments are less likely to issue management forecasts due to inherent uncertainty (Waymire 1985). Accordingly, I include $EARNVOL_{i,t}$ (the volatility of annual earnings over the 5 years) and $RETVOL_{i,t}$ (the volatility of annual stock returns over the 5 years) as control variables. I also include $NUMEST_{i,t}$ (the number of analysts following the firm) to control for the demand for management forecasts from key market participants (Lang and Lundholm 1996). Furthermore, I also control for litigation exposure ($LITIGATION_{j,t}$) and industry concentration ($CONCENTRATION_{j,t}$) (Bamber and Cheon 1988; Kasznik and Lev 1995) because prior literature has identified litigation risk and proprietary costs as potential factors managers consider in their forward-looking disclosure decision.

Tests of Hypothesis 2

Testing of H2 requires the separation of firms according to a priori measures of financing frictions they face. Given the debate in the literature on the plausible measures to use, I use six alternative criteria to partition my sample: level of cash holdings, the Kaplan-Zingales (1997) index, the Whited-Wu (2006) index, the Altman's (1968) Z score, dividend payout, and presence of a credit rating. To test H2, I estimate the following model:

$$DISCLOSURE_{i,t} = \beta_0 + \beta_1 SMD_{i,t} + \beta_2 FinCon_{i,t} + \beta_3 SMD_{i,t} \times FinCon_{i,t} + \beta_4 Controls_{i,t} + \gamma_{j,t} + \delta_t + \varepsilon \quad (2)$$

where $FinCon_{i,t}$ is a conditioning variable that moderates the association between a firm's short-debt maturity and forward-looking disclosure. All other variables are as defined before. The coefficient β_3 represents the effect of financing constraints on the relation between the short-debt maturity and forward-looking disclosure. Under H2, the coefficient on the interaction term, β_3, is expected to be positive.

FinCon$_{i,t}$ refers to six proxies for financing constraints. My first proxy uses the level of cash holdings to measure financing constraints. Financially constrained firms are those with below-median cash holding in a fiscal year. My second and third proxies are the five-variable KZ index and the WW index. Firms with a higher KZ and/or WW index are more financially constrained. Using the above two indexes, I classify firms as financially constrained by dividing the sample at the median for each fiscal year; the ones above the sample median are classified as financially constrained firms and the rest are unconstrained firms. My fourth proxy is based on Altman's (1981) Z score. A firm is classified as a constrained firm if its Z score is smaller than or equal to 1.81 in a fiscal year. The rest of the firms are classified as not constrained. Following Fazzari et al. (1988), who argue that financially constrained firms have significantly lower payout ratios, my fifth proxy uses the dividend payout as a criterion. I assign firms to the financially constrained group if the total distributions are zero. Unconstrained firms are those that are not labeled as constrained. My last proxy is based on the availability of credit ratings. Faulkender and Petersen (2006), suggest that firms with bond ratings have better access to debt financing. Firms without a credit rating are classified as constrained, and the rest are classified as unconstrained (Dang and Phan 2016; Duchin et al. 2010; Huang et al. 2018).[5] All six proxies are defined in Appendix A.

[5] For a subgroup of firms with a credit rating, I find the relation between short-maturity debt and disclosure is more pronounced among without a investment grade credit rating (i.e the credit rating is below BBB-).

IV. Sample and Data

Data in the study come from several sources. The initial sample consists of US-listed non-financial firms on the Compustat, the Center for Research in Security Prices (CRSP), and the Institutional Brokers' Estimate System (I/B/E/S) databases.[6] I obtain financial variables from Compustat, share price and return data from CRSP, and information on earnings forecasts and the number of analysts covering firms from I/B/E/S. I require firms to have nonmissing and positive values for sales and total assets and then limit the sample to observations for which there is sufficient data to construct the control variables described in Section 3.1.2. After deleting all firm-years for which the proportion of short-maturity debt to total debt is less than 0 or more than 1, my final sample consists of 51,719 firm-year observations for 7,331 unique firms over the period of 1997-2020.[7] Table 1 reports the sample selection process. My sample size is further reduced for some of the other tests due to additional data limitations. To mitigate the potential impact of outliers on the regression estimates, I winsorize continuous variables at the top and bottom 1 percent of their empirical distribution.

[Insert Table 1]

Table 2 reports the summary statistics for the final sample. With respect to management forecast frequency (*NUMMF*), the mean number of forecasts in a year is 1.032. The unconditional likelihood of forecast issuance (*DMF)* in the sample is 0.193. The mean and median values of the debt maturity measure (*SMD*) are 0.434 and 0.367, respectively.

[6] I exclude financial firms (with a two-digit SIC codes in 60–69) because their debt maturity information is not available on Compustat (Brockman et al. 2010; Khurana and Wang 2015) and because they have capital structures different from those of nonfinancial firms (Johnson 2003).

[7] My sample period starts from 1997 because of the sparsity of management earnings forecast data before 1997 on I/B/E/S.

The average firm in the sample has a mean (median) value of total assets of $ 4,106 ($573) million, which exhibits right-skewness. About 34% of the sample firm-year observations experience a loss. Panel B of Table 2 presents the sample composition by industry defined by the 2-digit SIC codes. The majority of firm years operate within the Manufacturing (51.1%) and Service and Public Administration (18.2%) industries. Panel C of Table 2 lists the sample distribution by year.

[Insert Table 2]

Table 3 presents Pearson correlations among selected variables. Several points are noteworthy. First, there is a significantly positive correlation between the frequency and likelihood of management earnings forecasts. Second, the correlation between the forward-looking disclosure variables and the proportion of short-maturity debt is negative, which while inconsistent with my prediction could be due to the fact that these are bivariate correlations that do not consider the effect of other variables on the incidence and likelihood of issuing management earnings forecasts. Third, the frequency and likelihood of management earnings forecasts are positively correlated with firm size, profitability, the number of analysts following, issuance of debt or equity securities, and litigation risk, and they are negatively correlated with earnings volatility, stock return volatility, loss, and industry concentration. Last, the correlations among the control variables are generally smaller than 0.3, suggesting multicollinearity is unlikely to be a concern.[8]

[Insert Table 3]

[8] I diagnose multicollinearity in the regressions using variance inflation factors (VIFs). The VIF for control variables in any of my regressions never exceeded 3, suggesting that no large correlations could induce collinearity problems in the regression analysis.

V. Empirical Results

Results for Test of Hypothesis 1

Table 4 presents the results from estimating alternative specifications of Equation (1). I use the frequency of management forecasts ($NUMMF_{i,t}$) in Column (1) and the likelihood of management forecasts ($DMF_{i,t}$) in Column (2) as dependent variables. Adjusted-R^2 are 0.372 and 0.434, respectively. Several control variables in these specifications are generally significant in the expected direction. For example, larger firms ($LSIZE_{i,t}$), more profitable ones ($ROA_{i,t}$), firms with more analyst following ($NUMEST_{i,t}$), and those issuing debt or common stock ($ISSUE_{i,t}$) are associated with greater frequency and likelihood of management forecasts. Firms with higher earnings and return volatility ($EARNVOL_{i,t}$ and $RETVOL_{i,t}$), and growth firms ($MB_{i,t}$) are associated with lower frequency and likelihood of management forecasts.

[Insert Table 4]

In terms of H1, the coefficients on $SMD_{i,t}$ are of interest. As shown in the top row across both columns, the coefficients on $SMD_{i,t}$ are invariably positive and significant ($p < 0.05$), suggesting that firms are more likely to issue forecasts as the proportion of short-maturity debt increases. In terms of economic magnitude, the coefficient of 0.119 in Column (1) indicates that holding the control variables at their mean values, for the inter-quartile change in $SMD_{i,t}$, the marginal change in the frequency of management forecast is 0.08 (=0.119×(0.802-0.099)), which is 8.11% (=0.08/1.032) of the mean number of management earnings forecast.[9] Overall, the results reported above are consistent with H1,

[9] As demonstrated in Table 2, the first and third quartiles of *SMD* are 0.099 and 0.802, respectively.

which predicts that the extent of short-maturity debt is positively associated with the issuance and frequency of management earnings forecasts.

It is worth noting that the prediction of the positive relation between short-debt maturity and forward-looking disclosures is built on two arguments: (1) debt maturity reflects firms' potential needs for financing and (2) forward-looking disclosure reduces information asymmetry and the market's uncertainty regarding a firm. In other words, firms exhibiting a demand for additional capital in the near term are expected to be more willing to provide forward-looking information. However, the evidence I show so far suggests that short-debt maturity is positively correlated with forward-looking disclosure after controlling for contemporaneous capital issuance, $ISSUE_{i,t}$, and other variables identified in prior research to affect firm disclosures. What is not clear is how the potential needs of firms for financing map into ex-post financing and the disclosure decision.

To better understand whether and how ex-post financing activities affect the interaction between debt maturity and disclosure decisions, I estimate Model (1) separately, for the subsamples of firms that access capital markets in year *t+1* and those that do not. Table 5 reports the regression results. For both the frequency and likelihood of management earnings forecasts, the coefficient on $SMD_{i,t}$ is positive and significant ($p < 0.01$) for the subsamples of firms that issue (1) either equity or debt, (2) equity, and (3) debt. When debt issuance is further divided into the issuance of public debt and private debt, the result is stronger for the subsample that issues public debt. Moreover, the differences in the coefficients for the two subsamples are statistically significant for debt issuance, and the effect is driven by debt issuance in the public debt market. Overall, the results in Table 5 indicate that the increase in forward-looking disclosures is motivated by

the demand for subsequent capital raising, especially in the public capital market, as firms hold a larger proportion of short-maturity debt.

[Insert Table 5]

Results for Tests of Hypothesis 2

To test H2, I exploit the variation in financial constraints to examine how they affect the relation between short-debt maturity and forward-looking disclosure. Panels A and B of Table 6 report the regression results of estimating Equation (3) with the frequency and likelihood of management earnings forecasts, respectively, as dependent variables. Under H2, the coefficient on the interaction term $SMD_{i,t} \times FinCon_{i,t}$ is of interest. Because the results in Panels A and B generally yield similar inferences, I discuss the results reported in Panel A in more detail.

In Column (1), financial constraints is reflected by $FinConCash_{i,t}$, the indicator that a firm holds a lower-than-median level of cash in a year. The coefficient on the interaction term is positive and significant ($p < 0.01$) in Columns (1). In Columns (2) and (3), *FinCon* is set to $FinConKZ_{i,t}$ and $FinConWW_{i,t}$, which reflect firm-years with the above-median KZ index and WW index, respectively. The coefficients on the interaction terms for $FinConKZ_{i,t}$ are positive and significant ($p < 0.01$ in Column (2)). In Column (4), financial constraints are measured by $FinConZ_t$, the indicator of firm-years with Altman's Z score that is smaller than or equals 1.81. The coefficient on the interaction term in Column (4) is positive and significant ($p < 0.01$). In Columns (5) and (6), $FinCon_{i,t}$ is set to $FinConDiv_{i,t}$ and $FinConRate_{i,t}$, to capture firm-years without dividend payment and credit rating, respectively. Both coefficients are positive and significant ($p < 0.01$). Overall, the results in Table 6 support H2, indicating that financial constraints magnify the

increase in forward-looking disclosures as firms hold a larger proportion of short-maturity debt.

[Insert Table 6]

Results of Additional Tests

Other Disclosure Channels

To further test the impact of short-debt maturity on firms' forward-looking disclosure, I conduct additional analyses to examine management forecasts other than earnings forecasts and alternative disclosure channels: 8-K filings, MD&A reports, and earnings press releases. These analyses also help to mitigate the concerns that firms may suppress information disclosure through other supplementary channels when they increase the management earnings forecasts.

First, management may provide forward-looking information by issuing earnings along with other items of the income statement (Hirst et al. 2008) to facilitate outsiders' evaluation of a borrower firm's perspective. Specifically, the proxies I employ measure the likelihood of reporting a forecast on revenue ($SAL_{i,t}$), net income ($NET_{i,t}$), operating profit ($OPR_{i,t}$), pretax income ($PRE_{i,t}$), capital expenditure ($CPX_{i,t}$), dividends per share ($DPS_{i,t}$), return on assets ($ROA_{i,t}$), and return on equity ($ROE_{i,t}$). The results presented in Table 8 Panel A are positive and significant across the columns, suggesting that the likelihood of these management forecasts is higher as the proportion of short-maturity debt increases.

Second, I test whether the information content of MD&As varies with firms' debt maturity structure. $FWDMDA_{i,t}$ captures the extent of forward-looking information contained in MD&As and equals the logarithm of one plus the proportion of words indicating forward-looking information (Bryan 1997; Clarkson et al. 1999; Barron et al.

1999; Li 2010; Vashishtha 2014). To calculate $FWDMDA_{i,t}$, I first use an R script to download all 10-Ks from SEC's Electronic Data-Gathering, Analysis, and Retrieval (EDGAR) system and extract the MD&A section. Following Li (2010), I next identify words related to forward-looking information and code the frequency of these words in each MD&A and the length of the MD&A. As displayed in Column (5) of Panel B Table 8, the positive coefficients of $SMD_{i,t}$ suggest that short-debt maturity is positively related to firms' use of forward-looking terms in their subsequent MD&A reports ($p < 0.01$). In other words, debt maturity structure also creates motivations for firms to increase the informativeness of MD&As.

Last, following Vashishtha (2014), I examine whether and how the information content of firms' earnings press releases is affected by short-debt maturity. To collect disclosed information from firms' earnings press releases, I employ an R program to extract 8-K filings from the EDGAR website, script Item 12 or Item 2.02 of 8-Ks for press releases, and search and organize relevant keywords in the text of the press releases. Specifically, I measure the frequency with which firms mention balance sheets ($BS_{i,t}$), income statements ($IS_{i,t}$), cash flow statements ($CF_{i,t}$), capital expenditure ($CAPEX_{i,t}$), and research and development activities ($RD_{i,t}$) in their press release during a year. The results are summarized in Panel B of Table 7. The coefficients are positive, suggesting that press releases for firms that hold a larger proportion of short-maturity debt are more likely to disclose specific accounting information included in cash flow statements and related to capital expenditures.

[Insert Table 8]

Endogeneity Concerns

An important concern about the findings is that firms' debt maturity structure is endogenous. Moreover, omitted variables may also affect both maturity structure and disclosure policy. I tackle the endogeneity concern in multiple ways. As previously mentioned, Equation (1) controls for industry-fixed effects and year-fixed effects that capture the impact of unobservable industry-specific characteristics and underlying economic trends, respectively. Furthermore, the maturity structure of a firm's long-term debt is the cumulative outcome of past debt financing decisions and therefore is less likely to be determined by current business fundamentals or market conditions (Almeida et al. 2012; Jung et al. 2021). In this section, I present further evidence to address potential endogeneity concerns. I first present the results that use different instrumental variable specifications. To minimize the concern regarding simultaneity bias, I also employ a simultaneous equations framework in which debt maturity and disclosure are assumed to be jointly determined.

Instrumental Variable Specifications

To address the endogeneity concern, in this section, I instrument maturity using variables that are not directly correlated with disclosure but are likely to affect disclosure through maturity. Specifically, I consider (1) a firm's prior term structure, (2) the size of the Fed's balance sheet, and (3) military expenditures.

Prior Maturity Structure

The first instrument I use is the debt maturity structure in year *t-10*, $SMD_{i,t-10}$,[10] which is correlated with the current maturity. However, the maturity structure in the distance past

[10] As a robustness test, I instrument $SMD_{i,t}$ with *SMD* in year *t-15*, *SMD* in fiscal year 1990, and *SMD* in fiscal year 1997. Untabulated results based on these alternative instruments yield inferences similar to those reported in the paper.

is likely to be of little or no importance in determining the current disclosure strategy. Such observation suggests that $SMD_{i,t-10}$ is associated with disclosure primarily through the current maturity structure. In Panel A of Table 9, Column (1) reports the first-stage estimation results where the proportion of short-maturity debt is regressed on the $SMD_{i,t-10}$. The estimation results suggest a positive and statistically significant relation between $SMD_{i,t-10}$ and $SMD_{i,t}$ ($p < 0.01$). Column (1) also reports the statistics for under-identification and weak identification tests. Anderson canonical correlation LM statistic is 1414.234, rejecting the null hypothesis that the model is under-identified. The second-stage regression summarized in Column (2) indicates an economically and statistically significant ($p < 0.01$) relation between forecast frequency and instrumented short-maturity debt. The estimated effects using this instrumental variable specification are more pronounced than the baseline results in Table 4. In Column (3), where the dependent variable is the likelihood of disclosure, the result is similar.

The Size of the Fed's Balance Sheet

When the federal funds rate falls around the zero lower bound, traditional forms of policy tools become ineffective. As a result, the Fed has to rely on unconventional monetary policies such as large-scale asset purchases (also known as "quantitative easing") to influence long-term interest rates and the pace of economic growth. The Fed took quantitative easing after the financial crisis of 2007, and again during the COVID pandemic. As argued by Cortes et al. (2022), the injection of liquidity by the Fed spills over to firms. The implementation of quantitative easing crates positive shocks to the availability of long-term capital for firms because long-term real rates are kept low. In other words, liquidity shocks are positively (negatively) correlated with the supply (costs) of long-term debt,

reducing the demand for short-maturity debt, but are not likely to be correlated with the disclosure incentives.

I use the size of the Fed's balance sheet to proxy for the injection of liquidity. The data on total assets (net of Eliminations from Consolidation) of the Federal Reserve Banks is collected from the Federal Reserve Bank of St. Louis. In Panel B of Table 9, Column (1) reports the first-stage estimation results where the proportion of short-maturity debt is regressed on the size of the Fed's balance sheet. Consistent with the argument that the injection of liquidity increases the supply and decreases the costs of long-term corporate debt, the estimated coefficient of $FedAsset_{i,t}$ suggests a negative and statistically significant ($p < 0.01$) relation between the size of the Fed's balance sheet and the portion of the short-maturity debt. The second-stage regression summarized in Columns (2) and (3) suggests a significantly positive relation ($p < 0.01$ for both the frequency and the likelihood of disclosure) between disclosure and instrumented short-maturity debt.

Military Expenditures

Extant literature employs military expenditure as exogenous shocks to governmental financing activities since defense spending reflects geopolitical factors that are orthogonal to the state of the economy (Auerbach and Gorodnichenko 2012; Barro 1981; Berndt et al 2012; Cowx et al. 2022; Demirci et al. 2019; Nakamura and Steinsson 2014; Ramey and Shapiro 1998; Silva 2021). An increase in military spending exogenously adds to fiscal deficits, which in turn increases the issuance of government bonds. An independent stream of the literature suggests that government debt and corporate debt are close substitutes to each other (Barro 1974; Becker and Ivashina 2018; Demirci et al. 2019; Friedman 1972; Krishnamurthy and Vissing-Jorgensen 2012; 2015). As the expected

return on long-term Treasuries increases with the supply of long-term Treasuries, firms would issue short-term debt until the expected return on long-term debt equals that of short-term debt. Combining these two groups of findings, I expect military expenditures to be positively correlated to the issuance of government debt, which crows out long-term corporate debt and increases firms' use of short-term debt. In other words, military expenditures are positively correlated with the proportion of short-maturity corporate debt but are not likely to be correlated with forward-looking disclosure incentives.

Data on military expenditures comes from the World Bank. Following Demirci et al. (2019), I exclude firms operating in defense-related industries to ensure that the results are not biased by firms operating in defense-dependent industries.[11] In Panel C of Table 9, Column (1) reports the first-stage estimation results where the proportion of short-maturity debt is regressed on the military expenditures to GDP. Consistent with the argument that military expenditures increase government debt, crowd out long-term corporate debt, and force firms to use more short-term debt, the estimation results suggest a positive and statistically significant relation ($p < 0.01$) between military expenditures and short-debt maturity. The second-stage regression summarized in Columns (2) and (3) indicates that the main findings are robust to the use of military expenditures as an instrumental variable.

[Insert Table 9]

Two-stage Results

[11] Per definition of the US Bureau of Labor Statistics, these industries (four-digit SIC Code) are explosives (2892), ordnance and accessories (3489), radio and TV communications equipment (3663), communications equipment (3669), aircraft and parts (3728), shipbuilding and repairing (3731), guided missiles and space vehicles (3761), tanks and tank components (3795), search and navigation equipment (3812), commercial physical research (8731), commercial nonphysical research (8732), and testing laboratories (8734).

To examine the impact of debt maturity structure on forward-looking disclosure, it is also important to account for the possibility that debt maturity and disclosure are simultaneously determined. If a lender grants a firm a short-maturing loan, the firm might decide to disclose more forward-looking information to improve transparency. But better information environment could simultaneously increase the likelihood for lenders to provide a firm with short-term debt. To control for variables that could be potentially correlated with both debt maturity and forward-looking disclosure, I use a simultaneous equations framework in which disclosure and debt maturity are assumed to be jointly determined (Harford et al. 2014; Khurana and Wang 2015; Nikolaev 2010). Under this approach, I first estimate $SMD_{i,t}$ on firm characteristics identified by previous literature as determinants of debt maturity, industry-fixed effects, and year-fixed effects (e.g. Brockman et al. 2015; Diamond 1991; Myers 1977). Specifically, I estimate the following first-stage model:

$$\begin{aligned} SMD_{i,t} = {} & \alpha_0 + \alpha_1 LEVERAGE_{i,t} + \alpha_2 AssetMat_{i,t} + \alpha_3 LSIZE_{i,t} + \alpha_4 LSIZE2_{i,t} \\ & + \alpha_5 STDRet_{i,t} + \alpha_6 REG_{i,t} + \alpha_7 ABNEARN_{i,t} + \alpha_8 TERM_{i,t} \\ & + \alpha_9 RATING_{i,t} + \alpha_{10} MB_{i,t} + \gamma_{j,t} + \delta_t \end{aligned} \tag{4}$$

where $LEVERAGE_{i,t}$ is the ratio of the total liability to total assets; $AssetMat_{i,t}$ is the asset maturity; $LSIZE_{i,t}$ is the log of the market value of equity; $LSIZE2_{i,t}$ is the square of $LSIZE_{i,t}$; $STDRet_{i,t}$ is the annual standard deviation of stock return time the market value of equity divided by the market value of assets; $REG_{i,t}$ equals one if the firm's SIC code falls between 4900 and 4939, and zero otherwise; $ABNEARN_{i,t}$ is calculated as the difference between earnings in year $t + 1$ and earnings in year t, divided by the market value of equity in year t; $TERM_{i,t}$ is the difference between the yield on 10-year government bonds and the yield

on six-month government bonds; $RATING_{i,t}$ is one for firms that have an S&P long-term credit rating, and zero otherwise; and $MBS_{i,t}$ is the ratio of the market-to-book value of equity.

The residuals from Equation (4), $ResSMD_{i,t}$, are orthogonal to the variables used in the equation. In the second stage, I replace $SMD_{i,t}$ in Equation (1) with $ResSMD_{i,t}$ and estimate the model. Results of estimating the first-stage regression model are reported in Panel A of Table 10. Adjusted-R^2 of the first-stage model is 29.8 percent and the estimated coefficients are significant ($p < 0.01$). The results of estimating the second-stage regression model are shown in Panel B of Table 8. The coefficient on $ResSMD_{i,t}$ is positively and statistically significant ($p < 0.1$ or lower). The main finding regarding the relations between debt maturity and forward-looking disclosure remains consistent when I employ the simultaneous equations framework that controls for a group of determinants of debt maturity and forward-looking disclosure.

Robustness Checks

I further check the robustness of the regression results by employing alternative specifications. The results of the robustness tests are reported in Table 11. First, in panel A, I assess the robustness of the results to alternative samples and model specifications. It is possible that private debt and public debt create different incentives for disclosure. To isolate the effect of public debt in debt mature structure, in Columns (1) and (2), I limit the data to the subsample in which firms do not have outstanding private debt. In Columns (3) and (4), I replace the industry fixed effect in Equation (1) with firm fixed effects to further control for omitted variable bias. To mitigate the concern that annual forecasts are "sticky" over time, I use the frequency and propensity of quarterly earnings forecasts as the left-

hand-side variable in Columns (5) and (6). I use the proportions of maturing debt net of cash holding as the left-hand-side variable in Columns (7) and (8). In Columns (9) and (10), I further control for leverage. The results for the frequency and likelihood of management earrings forecast are robust to these alternative samples and specifications. In the different robustness-check regressions, the proportion of short-maturity debt increases the frequency and likelihood of management earrings forecast. In addition, the inclusion of the firm indicator variables does not meaningfully affect the significance of the estimated coefficients.

Second, although I follow existing literature to use the fraction of debt maturing in three years as the variable of interest, to enhance the robustness of the conclusion, I employ alternative measures for debt maturity structure, including the proportions of total debt that matures within one, two, four, and five years. The results reported in Panel B Table 11 provide consistent evidence.

Third, in order to gain a deeper understanding of the potential impact of corporate leverage structure on the interplay between debt maturity and disclosure, the research sample was divided based on quartiles of firm-year leverage values. Notably, the results showed more pronounced effects within the top two quartiles. This finding aligns with the notion that highly leveraged firms, when confronted with more urgent refinancing needs, are more inclined to augment their information production.

[Insert Table 11]

VI. Conclusion

In this study, I examine the relation between a firm's debt maturity structure and forward-looking disclosure decisions. The presence of short-maturity debt can increase firms' exposure to refinancing and equity risk, create potential demand for additional capital, and affect management's decision to make forward-looking disclosures.

I find an increase in the frequency and the propensity to issue management earnings forecasts as firms hold a large proportion of short-maturity debt. I also show that the increase in forward-looking disclosures is motivated by the demand for subsequent capital raising, especially in the public capital market, as firms hold a larger proportion of short-maturity debt. Further, I find that the positive relation between short-debt maturity and disclosure is more pronounced among financially constrained firms. Extending the tests to disclosure channels other than management forecasts, I find similar disclosure increases when I use the 8-K filings, MD&A reports, and earnings press releases as alternative proxies for forward-looking disclosure. Collectively, these results contribute to our understanding of the impact of a firm's debt financing policy decisions on firms' disclosure practices.

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Appendix A: Variable Definition

Variable	Definition	Source
Dependent Variables		
NUMMF	Total number of the management earnings forecast made by a firm during a year.	I/B/E/S
DMF	One if a firm issues at least one management earnings forecast during a year.	I/B/E/S
Test Variables		
SMD	Debt in current liabilities plus debt maturing in the second and the third year, scaled by total debt. Total debt is defined as debt in current liabilities plus long-term debt.	Compustat
SMD1	Debt in current liabilities, scaled by total debt.	Compustat
SMD2	Debt in current liabilities plus debt maturing in the second year, scaled by total debt.	Compustat
SMD4	Debt in current liabilities plus debt maturing in the second, the third, and the fourth year, scaled by total debt.	Compustat
SMD5	Debt in current liabilities plus debt maturing in the second, the third, the fourth, and the fifth year, scaled by total debt.	Compustat
NetSMD	Debt in current liabilities plus debt maturing in the second and the third year minus cash and short-term investments, scaled by total debt.	
Control Variables		
LNSIZE	The logarithm of the market value of a firm.	Compustat
LNSIZE2	Square of *LNSIZE*.	Compustat
ROA	Ratio of operating income before depreciation to total assets.	Compustat
MB	Market value of a firm divided by the book value of total assets.	Compustat
EARNVOL	The standard deviation of five annual earnings (scaled by total assets). I require a firm year to have at least three years of data to calculate the variable.	Compustat
RETVOL	The standard deviation of five annual stock return observations. I require a firm year to have at least three years of data to calculate the variable.	CRSP
NUMEST	Number of analysts following.	I/B/E/S
LOSS	One if net income is less than zero, and zero otherwise	Compustat
ISSUE	One if the firm has a debt or equity securities issuing, and zero otherwise	Compustat
CONCENTRATION	The sales of the top-five firms in the 2-digit SIC industry to which a firm year belongs, scaled by total sales of the firms in the industry during the year	Compustat
LITIGATION	One if the firm-year is in a high litigation SIC code: 2833–2836, 3570–3577, 3600–3674, 5200–5961, 7370–7374, and zero otherwise.	Compustat
AssetMat	Book value-weighted average of the maturities of current assets and property, plant, and equipment.	Compustat
LEVERAGE	Long-term debt divided by the market value of a firm.	Compustat
REG	One if a firm's SIC code is between 4900 and 4939, and zero otherwise.	Compustat
ABNEARN	The difference between earnings in time $t+1$ and earnings in time t divided by the market value of equity in year t.	Compustat

TERM	Difference between the yield on 6-month government bonds and the yield on 10-year government bonds in a firm's fiscal year.	Federal Reserve Bank of St. Louis
STDRet	Annual standard deviation of stock return times the market value of equity divided by the market value of assets	CRSP
$RATING_t$	One for firms that have an S&P long-term credit rating, and zero otherwise	Compustat
Other Dependent Variables		
Related to Management Forecasts		
BadNews	One if the difference between forecasted earnings and the analyst consensus scaled by the stock price is smaller than -0.0001, and zero otherwise.	I/B/E/S
GoodNews	One if the difference between forecasted earnings and the analyst consensus scaled by the stock price is greater than 0.0001, and zero otherwise.	I/B/E/S
CAR	The two-day cumulative abnormal returns (the day of and the day after the forecast) of the management earnings forecasts.	CRSP
SAL	One if a firm issues at least one revenue forecast during a year, and zero otherwise.	I/B/E/S
HORIZON	One plus the logarithm of the difference in days between the fiscal period end and the forecast announcement date.	I/B/E/S
ACCURACY	Minus one times the absolute difference between the management earnings forecast and actual earnings scaled by absolute actual earnings.	I/B/E/S
PRECISION	4, 3, 2, and 1 for point, range, open-ended and qualitative estimates, respectively.	I/B/E/S
SPECIFICITY	Minus one times the difference between the upper forecast range and the lower of the forecast range scaled by the pre-release share price for range estimates, and zero for point estimates.	I/B/E/S
NET	One if a firm issues at least one net income forecast during a year, and zero otherwise.	I/B/E/S
OPR	One if a firm issues at least one operating profit forecast during a year, and zero otherwise.	I/B/E/S
PRE	One if a firm issues at least one pretax income forecast during a year, and zero otherwise.	I/B/E/S
CPX	One if a firm issues at least one capital expenditure forecast during a year, and zero otherwise.	I/B/E/S
DPS	One if a firm issues at least one dividends per share forecast during a year, and zero otherwise.	I/B/E/S
ROA	One if a firm issues at least one return on assets forecast during a year, and zero otherwise.	I/B/E/S
ROE	One if a firm issues at least one return on equity forecast during a year, and zero otherwise.	I/B/E/S
Related to Other Types of Discretionary Disclosures		
FWDMDA	Logarithm of one plus the proportion of the number of forward-looking terms as identified by Li (2010) in the text of an MD&A report to the word count of the report	EDGAR
BS	Total number of the 8-K filings with Item 12 or Item 2.02 that involve a balance sheet in a year.	EDGAR
IS	Total number of the 8-K filings with Item 12 or Item 2.02 that involve an income statement in a year.	EDGAR
CF	Total number of the 8-K filings with Item 12 or Item 2.02 that involve a statement of cash flow in a year.	EDGAR
CAPEX	Total number of the 8-K filings with Item 12 or Item 2.02 that contain capital expenditures in a year.	EDGAR
RD	Total number of the 8-K filings with Item 12 or Item 2.02 that contain research and development activities in a year.	EDGAR
Partitioning Variables		
CHE	Cash and short-term investments.	Compustat
FinConCash	One for observations with above-median *CHE* in a year, and zero otherwise.	Compustat

KZ_INDEX	Kaplan-Zingales (1997) index = $-1.002\times(\text{Cash Flow}_{i,t}/\text{PPE}_{i,t-1})+0.283\times\text{Tobin's Q}_{i,t}+3.319\times\text{Leverage}_{i,t}-39.368\times(\text{Dividends}_{i,t}/\text{PPE}_{i,t-1})-1.315\times(\text{Cash Holdings}_{i,t}/\text{PPE}_{i,t-1})$.	Compustat
FinConKZ	One for observations with above-median *KZ_INDEX* in a year, and zero otherwise.	Compustat
WW_INDEX	Whited-Wu (2006) index = $-0.091\times\text{Cash Flow}+0.062\times\text{Dividend dummy}+0.021\times\text{Long-Term Debt}-0.044\times\text{Size}+0.102\times\text{Industry Sales Growth}-0.035\times\text{Sales Growth}$.	Compustat
FinConWW	One for observations with above-median *WW_INDEX* in a year, and zero otherwise.	Compustat
ZScore	Altman's Z-score $=3.3\times(\text{Operating Income After Depreciation / Total Assets})+1.2\times(\text{Total Current Assets}-\text{Total Current Liabilities})/\text{Total Assets}+\text{Sales}/\text{Total Assets}+0.6\times\text{Total Equity/Total Liabilities}+1.4\times\text{Retained Earnings}/\text{Total Assets}$.	Compustat
FinCon Z	One for a firm-year whose Altman's Z-score is smaller than or equals 1.81, and zero otherwise.	Compustat
FinConDiv	One if a firm does not pay dividends in a year, and zero otherwise.	Compustat
FinConRate	One if a firm does not have an S&P Long-Term Debt Rating in a year, and zero otherwise.	Compustat
Variables Related to Economic Shocks to the Supply of Capital		
$SMD_{i,t-10}$	Debt in current liabilities plus debt maturing in the second and the third year, scaled by total debt at the end of year *t-10*.	Compustat
FedAsset	Total assets (net of Eliminations from Consolidation) of the Federal Reserve Banks.	Federal Reserve Bank of St. Louis
MilitaryExp	Military expenditure as a percentage of GDP for a year.	World Bank

Table 1: Sample Selection

This table presents the sample selection procedure. The initial sample consists of all US-listed firms in Compustat for the period from 1997 to 2020. Observations are deleted if (1) they are not identified on the CRSP or I/B/E/S database, (2) they belong to a financial institution (with a four-digit SIC code in 6000–6999), (3) sales revenue or total asset is missing or negative values, (4) there is insufficient information to calculate the variables used in the empirical models, and (5) the proportion of short-maturity debt to total debt is greater than one or less than zero (Brockman et al. 2010; Khurana and Wang 2015).

	Firm-Year	Unique Firms
Merged sample of Compustat, CRSP, and I/B/E/S firms that are not in financial service industry from 1997 through 2020	80,071	9,462
less: firms with negative or missing values of sales or assets	(371)	(48)
less: firms with insufficient data to calculate regression variables	(22,056)	(1,817)
less: firms with negative or greater-than-one *SMD*	(5,925)	(266)
Number of observations for the final analysis	51,719	7,331

Table 2: Summary Statistics and Sample Composition

In this table, Panel A presents summary statistics for selected variables. Total Assets are in millions of dollars. All variables are defined in Appendix A. All continuous variables are winsorized at 1% top and bottom. Panel B presents industry composition by two-digit SIC codes. Panel C lists year composition by firms' fiscal year.

Panel A: Summary Statistics

Variable	N	Mean	S.D.	Q1	Median	Q3
SMD1	51,719	0.245	0.317	0.015	0.098	0.344
SMD2	51,719	0.343	0.351	0.046	0.202	0.575
SMD	51,719	0.434	0.367	0.099	0.330	0.802
SMD4	51,719	0.519	0.368	0.181	0.475	0.951
SMD5	51,719	0.602	0.360	0.291	0.637	0.997
NUMMF	51,719	1.032	2.584	0	0	0
DMF	51,719	0.193	0.394	0	0	0
LSIZE	51,719	6.793	2.212	5.136	6.816	8.364
ROA	51,719	-0.045	0.258	-0.038	0.029	0.067
MB	51,719	1.884	1.369	1.104	1.438	2.101
EARNVOL	51,719	0.097	0.161	0.019	0.041	0.102
RETVOL	51,719	0.546	0.497	0.251	0.397	0.645
NUMEST	51,719	3.341	6.261	0	0	4.000
LOSS	51,719	0.339	0.473	0	0	1.000
ISSUE	51,719	0.754	0.431	1.000	1.000	1.000
CONCENTRATION	51,719	0.492	0.171	0.376	0.439	0.577
LITIGATION	51,719	0.322	0.467	0	0	1.000
Total Assets	51,719	4,106	11,046	117	573	2,499

Panel B: Sample Composition by Industry

Two-digit SIC Code	Industry	N	Percent
10-17	Mining and Construction	3476	6.7
20-39	Manufacturing	26,467	51.2
40-49	Transportation & Public Utilities	5,775	11.2
50-51	Wholesale Trade	2,365	4.6
52-59	Retail Trade	4,238	8.2
70-99	Service and Public Administration	9,398	18.2
Total		51,719	100

Panel C: Sample Composition by Year

Fiscal Year	N	Fiscal Year	N	Fiscal Year	N
1997	3,051	2006	2,065	2015	1,713
1998	3,094	2007	2,010	2016	1,638
1999	2,977	2008	2,004	2017	1,648
2000	2,759	2009	1,946	2018	1,605
2001	2,625	2010	1,833	2019	2,197
2002	2,530	2011	1,771	2020	2,330
2003	2,373	2012	1,757		
2004	2,231	2013	1,723		
2005	2,110	2014	1,729	Total	52,245

Table 3: Pearson Correlation

This table reports Pearson correlations. All variables are defined in Appendix A. All continuous variables are winsorized at 1 top and bottom. Absolute values of correlation greater than 0.05 are all significant at the 1 level.

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1)	*SMD1*	1																
(2)	*SMD2*	0.845	1															
(3)	*SMD*	0.712	0.866	1														
(4)	*SMD4*	0.600	0.746	0.874	1													
(5)	*SMD5*	0.495	0.631	0.749	0.866	1												
(6)	*NUMMF*	-0.059	-0.066	-0.065	-0.055	-0.045	1											
(7)	*DMF*	-0.053	-0.058	-0.055	-0.047	-0.036	0.818	1										
(8)	*LSIZE*	-0.360	-0.396	-0.387	-0.351	-0.295	0.281	0.266	1									
(9)	*ROA*	-0.213	-0.191	-0.157	-0.124	-0.088	0.136	0.145	0.360	1								
(10)	*MB*	0.061	0.040	0.018	0.002	-0.009	0.067	0.055	0.161	-0.189	1							
(11)	*EARNVOL*	0.225	0.203	0.174	0.141	0.104	-0.120	-0.125	-0.342	-0.670	0.242	1						
(12)	*RETVOL*	0.109	0.105	0.096	0.081	0.064	-0.090	-0.080	-0.206	-0.160	0.158	0.266	1					
(13)	*NUMEST*	-0.115	-0.130	-0.131	-0.122	-0.108	0.567	0.628	0.412	0.129	0.132	-0.129	-0.087	1				
(14)	*LOSS*	0.165	0.154	0.131	0.107	0.081	-0.162	-0.164	-0.353	-0.594	0.034	0.393	0.190	-0.137	1			
(15)	*ISSUE*	-0.057	-0.068	-0.066	-0.066	-0.033	0.026	0.025	0.099	-0.065	0.122	0.038	0.035	0.034	0.032	1		
(16)	*CONCENTRATION*	-0.087	-0.073	-0.049	-0.020	0.008	-0.011	-0.025	0.095	0.123	-0.097	-0.115	-0.046	0.010	-0.076	-0.047	1	
(17)	*LITIGATION*	0.102	0.092	0.076	0.058	0.038	0.055	0.039	-0.057	-0.173	0.235	0.192	0.155	0.057	0.149	0.019	-0.157	1

Table 4: Short-Maturity Debt and Management Earnings Forecasts

This table presents the results of testing H1 on the effect of short-maturity debt on the frequency ($NUMMF_{i,t}$) and likelihood ($DMF_{i,t}$) of management earnings forecasts. All variables are defined in Appendix A. Regressions include industry and year fixed effects. Standard errors are clustered by firm and year. ***, **, and * indicate statistical significance at the 1, 5, and 10 levels, respectively.

	(1) $NUMMF_{i,t}$	(2) $DMF_{i,t}$
$SMD_{i,t}$	**0.119*****	**0.021*****
	(4.53)	**(5.53)**
$LSIZE_{i,t}$	0.048***	0.002**
	(9.41)	(2.48)
$ROA_{i,t}$	0.105***	0.033***
	(2.61)	(4.96)
$MB_{i,t}$	-0.020**	-0.007***
	(-2.47)	(-5.94)
$EARNVOL_{i,t}$	-0.062	-0.001
	(-1.09)	(-0.15)
$RETVOL_{i,t}$	-0.181***	-0.019***
	(-10.25)	(-6.65)
$NUMEST_{i,t}$	1.284***	0.226***
	(102.96)	(137.72)
$LOSS_{i,t}$	-0.301***	-0.048***
	(-14.32)	(-14.14)
$ISSUE_{i,t}$	0.127***	0.018***
	(6.12)	(5.95)
$CONCENTRATION_{j,t}$	-0.119	0.001
	(-0.89)	(0.03)
$LITIGATION_{j,t}$	0.161***	0.011**
	(4.86)	(2.09)
Industry FE	Yes	Yes
Year FE	Yes	Yes
N	51,719	51,719
adj. R^2	0.372	0.434

Table 5: Subsample Analyses Using Subsequent Capital Raising as the Partitioning Variable

This table presents the results of testing how potential refinancing needs affect the interaction between debt maturity and forward-looking disclosure decisions. In Panel A (B), the left-hand-side variable is the frequency (likelihood) of management earnings forecast. The model is estimated separately for subsamples of firms with or without: equity or debt issuance (Columns (1) and (2)), equity issuance (Columns (3) and (4)), debt issuance (Columns (5) and (6)), public debt issuance (Columns (7) and (8)), and private debt issuance (Columns (9) and (10)). Seemingly unrelated estimation is used to test the equality of coefficients across models. For conciseness, the coefficients on control variables are not reported. All regressions include industry and year fixed effects. Standard errors are clustered by firm and year. ***, **, and * indicate statistical significance at the 1, 5, and 10 levels, respectively.

Panel A: Dependent Variable = $NUMMF_{i,t}$

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Issue	Equity or Debt		Equity		Debt		Public Debt		Private Debt	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
$SMD_{i,t}$	**0.175*****	**-0.035**	**0.128*****	**0.051**	**0.267*****	**0.044**	**0.709*****	**0.062****	**0.118***	**0.098*****
	(5.13)	**(-0.65)**	**(3.40)**	**(1.16)**	**(5.20)**	**(1.27)**	**(5.23)**	**(2.28)**	**(1.81)**	**(3.34)**
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	33,174	14,949	23,874	24,249	17,490	30,633	5,722	45,997	13,624	38,095
adj. R^2	0.352	0.420	0.321	0.417	0.379	0.372	0.403	0.361	0.417	0.348
Chi-squared statistic and p-value from testing coefficient differences:										
Difference	0.210		0.077		0.233		0.647		0.002	
Chi-squared statistic	11.75		1.93		14.01		22.91		0.09	
p-value	0.001		0.165		0.000		0.000		0.768	

Panel B: Dependent Variable = $DMF_{i,t}$

Issue	(1) Equity or Debt	(2) Equity or Debt	(3) Equity	(4) Equity	(5) Debt	(6) Debt	(7) Public Debt	(8) Public Debt	(9) Private Debt	(10) Private Debt
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
***SMD*$_{i,t}$**	**0.029*****	**0.001**	**0.027*****	**0.009**	**0.037*****	**0.014*****	**0.074*****	**0.016*****	**0.013**	**0.021*****
	(5.85)	**(0.07)**	**(4.64)**	**(1.54)**	**(5.05)**	**(2.71)**	**(4.19)**	**(3.91)**	**(1.54)**	**(4.80)**
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	33,174	14,949	23,874	24,249	17,490	30,633	5,722	45,997	13,624	38,095
adj. R^2	0.413	0.485	0.378	0.485	0.445	0.431	0.494	0.419	0.506	0.398
Chi-squared statistic and p-value from testing coefficient differences:										
Difference	0.028		0.018		0.023		0.058		-0.008	
Chi-squared statistic	10.84		4.53		6.92		10.79		0.73	
p-value	0.001		0.033		0.009		0.001		0.393	

Table 6: Regression Results for the Tests of H2 - Effects of Financial Constraints

This table presents the results of testing the moderating financial constraints on the impact of short-maturity debt on the frequency (Panel A) and likelihood (Panel B) of management earnings forecasts. $FinConCash_{i,t}$ is an indicator variable based on the annual median split of firm-level cash and short-term investments; $FinConKZ_{i,t}$ equals one for firms with the above-median Kaplan-Zingales (1997) index in a year; $FinConWW_{i,t}$ is the annual median split based on firms' Whited-Wu (2006) index; $FinConZ_{i,t}$ equals one for firm-year observations with Altman's Z-scores that are smaller than 1.81; $FinConDiv_{i,t}$ is an indicator of non-dividend-paying firms; *FinConRate* equals one for firms without an S&P long-term bond rating, and zero otherwise. All other variables are defined in Appendix A. For conciseness, the coefficients on control variables are not reported. All regressions include industry and year fixed effects. Standard errors are clustered by firm and year. ***, **, and * indicate statistical significance at the 1, 5, and 10 levels, respectively.

Panel A: Dependent Variable = $NUMMF_{i,t}$

	(1)	(2)	(3)	(4)	(5)	(6)
FinCon_K =	$FinConCash_{i,t}$	$FinConKZ_{i,t}$	$FinConWW_{i,t}$	$FinConZ_{i,t}$	$FinConDiv_{i,t}$	$FinConRate_{i,t}$
$SMD_{i,t}$	0.041	0.014	0.045	0.043	0.097***	0.082***
	(1.18)	(0.40)	(0.96)	(1.43)	(3.50)	(3.00)
$FinCon\_K_{i,t}$	0.077**	-0.134***	-0.085**	-0.251***	-0.085**	-0.012
	(2.55)	(-4.39)	(-2.45)	(-8.08)	(-2.07)	(-0.35)
$SMD \times FinCon\_K_{i,t}$	**0.130*** **	**0.225*** **	**0.003**	**0.356*** **	**0.236*** **	**0.235*** **
	(2.81)	**(4.88)**	**(0.05)**	**(7.87)**	**(4.12)**	**(3.01)**
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	51,719	51,719	51,719	51,719	51,719	51,719
adj. R^2	0.373	0.373	0.651	0.373	0.372	0.373

Panel B: Dependent Variable = $DMF_{i,t}$

	(1)	(2)	(3)	(4)	(5)	(6)
FinCon_K =	$FinConCash_{i,t}$	$FinConKZ_{i,t}$	$FinConWW_{i,t}$	$FinConZ_{i,t}$	$FinConDiv_{i,t}$	$FinConRate_{i,t}$
$SMD_{i,t}$	0.022***	0.009*	0.008	0.012***	0.020***	0.017***
	(4.32)	(1.66)	(1.20)	(2.80)	(4.83)	(3.94)
$FinCon\_K_{i,t}$	0.024***	-0.018***	-0.010*	-0.043***	-0.017***	-0.016***
	(5.43)	(-4.03)	(-1.95)	(-8.69)	(-2.80)	(-3.26)
$SMD \times FinCon\_K_{i,t}$	**-0.009**	**0.027*** **	**0.004**	**0.038*** **	**0.018*** **	**0.014**
	(-1.22)	**(3.83)**	**(0.53)**	**(5.02)**	**(1.84)**	**(1.41)**
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	51,719	51,719	51,719	51,719	51,719	51,719
adj. R^2	0.435	0.434	0.685	0.435	0.434	0.434

Table 7: Short-Maturity Debt and Information Content of Management Forecasts

This table estimates the relation between short-maturity debt and the information content of management earnings forecasts. $BadNews_{i,t}$ equals one if the difference between forecasted earnings and the analyst consensus scaled by the stock price is smaller than -0.0001, and zero otherwise. $GoodNews_{i,t}$ equals one if the difference between forecasted earnings and the analyst consensus scaled by the stock price is greater than 0.0001, and zero otherwise. $CAR_{i,t}$ is the two-day cumulative abnormal returns of the management earnings forecasts. $HORIZON_{i,t}$ measures the timeliness of a forecast. $ACCURACY_{i,t}$ captures the difference between a management forecast and actual earnings. $PRECISION_{i,t}$ takes the value one for qualitative forecasts, two for open-ended forecasts, three for range forecasts, and four for point forecasts. $SPECIFICITY_{i,t}$ equals zero for all point estimates, and minus one times the difference between the upper bound of the forecast range and the bottom of the range scaled by the pre-release share price for range estimates. All other variables are defined in Appendix A. All regressions include industry and year fixed effects. Standard errors are clustered by firm and year. ***, **, and * indicate statistical significance at the 1, 5, and 10 levels, respectively.

	Disclosure News			Disclosure Informativeness			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	$BadNews_{i,t}$	$GoodNews_{i,t}$	$CAR_{i,t}$	$HORIZON_{i,t}$	$ACCURACY_{i,t}$	$PRECISION_{i,t}$	$SPECIFICITY_{i,t}$
$SMD_{i,t}$	**-0.023***	**0.016**	**0.004*****	**0.008*****	**-0.522**	**0.050*****	**0.001*****
	(-1.67)	**(1.22)**	**(2.64)**	**(4.91)**	**(-1.52)**	**(5.80)**	**(2.89)**
$LSIZE_{i,t}$	0.020***	-0.019***	-0.002***	0.003***	-0.061	0.005***	-0.000**
	(4.49)	(-4.36)	(-4.98)	(8.25)	(-1.19)	(2.83)	(-2.25)
$ROA_{i,t}$	0.137***	-0.177***	-0.031***	0.004	6.446	0.079***	-0.015***
	(2.93)	(-3.80)	(-3.12)	(1.61)	(1.50)	(5.36)	(-6.63)
$MB_{i,t}$	0.040***	-0.048***	-0.004***	-0.002***	0.051	-0.012***	-0.001***
	(8.96)	(-11.32)	(-7.72)	(-2.88)	(0.65)	(-4.71)	(-8.81)
$EARNVOL_{i,t}$	0.102	-0.123*	-0.021*	-0.008**	-2.137	0.004	0.022***
	(1.35)	(-1.65)	(-1.66)	(-1.97)	(-1.57)	(0.17)	(8.66)
$RETVOL_{i,t}$	0.015	0.001	-0.002	-0.012***	-0.188	-0.036***	0.000
	(1.21)	(0.06)	(-0.96)	(-9.83)	(-0.74)	(-5.82)	(0.70)
$NUMEST_{i,t}$	-0.020**	0.011	0.005***	0.082***	-0.076	0.483***	-0.001***
	(-2.12)	(1.22)	(6.18)	(104.33)	(-0.55)	(132.01)	(-2.58)
$LOSS_{i,t}$	-0.171***	0.179***	0.011***	-0.019***	-0.690	-0.104***	0.002***
	(-12.08)	(12.60)	(5.52)	(-13.01)	(-0.94)	(-13.78)	(3.96)
$ISSUE_{i,t}$	-0.023**	0.016	0.000	0.006***	-0.223	0.038***	-0.001***
	(-2.07)	(1.50)	(0.07)	(4.43)	(-0.77)	(5.59)	(-3.91)
$CONCENTRATION_{j,t}$	-0.013	0.018	-0.011	-0.012	-2.741*	0.009	0.001
	(-0.18)	(0.23)	(-1.32)	(-1.24)	(-1.67)	(0.18)	(0.71)
$LITIGATION_{j,t}$	0.050***	-0.057***	0.001	-0.002	0.034	0.016	0.001***
	(2.72)	(-3.15)	(0.49)	(-0.91)	(0.14)	(1.42)	(3.05)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	13,316	13,316	39,913	51,719	51,719	51,719	51,719
adj. R^2	0.075	0.088	0.020	0.347	0.027	0.415	0.237

Table 8: Other Types of Disclosure

This table estimates the relation between short-maturity debt and other types of discretionary disclosures. In Panel A, the variables of interest are the likelihood of other types of management forecasts, including the forecast on revenue ($SAL_{i,t}$), net income ($NET_{i,t}$), operating profit ($OPR_{i,t}$), pretax income ($PRE_{i,t}$), capital expenditure ($CPX_{i,t}$), dividends per share ($DPS_{i,t}$), return on assets ($ROA_{i,t}$), and return on equity($ROE_{i,t}$). Panel B reports the estimation results using the information contents of MD&A, and earnings releases. All variables are defined in Appendix A. For conciseness, the coefficients on control variables are not reported. All regressions include industry and year fixed effects. Standard errors are clustered by firm and year. ***, **, and * indicate statistical significance at the 1, 5, and 10 levels, respectively.

Panel A: Other Types of Management Forecast

	(1) $SAL_{i,t}$	(2) $NET_{i,t}$	(3) $OPR_{i,t}$	(4) $PRE_{i,t}$	(5) $CPX_{i,t}$	(6) $DPS_{i,t}$	(7) $ROA_{i,t}$	(8) $ROE_{i,t}$
$SMD_{i,t}$	**0.012*****	**0.010****	**0.008***	**0.008****	**0.001**	**0.009****	**0.009****	**0.008****
	(3.10)	**(2.34)**	**(1.93)**	**(2.00)**	**(0.16)**	**(2.30)**	**(2.12)**	**(2.07)**
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	51,719	51,719	51,719	51,719	51,719	51,719	51,719	51,719
adj. R^2	0.698	0.657	0.646	0.646	0.628	0.651	0.645	0.646

Panel B: 8-K Reports, MD&A, and Press Release

	MD&A	Press Release				
	(1) $FWDMDA_{i,t}$	(2) $BS_{i,t}$	(3) $IS_{i,t}$	(4) $CF_{i,t}$	(5) $CAPEX_{i,t}$	(6) $RD_{i,t}$
$SMD_{i,t}$	**0.0003*****	**0.264**	**0.117**	**0.870*****	**0.870*****	**0.004**
	(2.66)	**(1.54)**	**(0.69)**	**(5.33)**	**(5.14)**	**(0.18)**
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	29,203	21,720	21,720	21,720	21,720	21,720
adj. R^2	0.152	0.225	0.230	0.214	0.231	0.223

Table 9: Effects of Economic Shocks to the Cost and Supply of Capital

This table presents estimates from panel regressions examining the effects of economic shocks that affect the cost and supply of external capital. Panels A, B, and C report the estimation results from instrumental variable regressions where *SMD* is instrumented by the debt maturity structure at *t-10* (SMD_{t-10}), the size of the Fed's balance sheet (*FedAsset*), and the lagged Military expenditures-to-GDP ratio (*MilitaryExp*). The first-stage (second-stage) results are demonstrated in Column (1) (Columns (2) and (3)). All other variables are defined in Appendix A. First-stage F-statistics used to obtain the *tF* critical values of Lee et al. (2021) are reported for each specification. 5 *tF* standard error and 95-confidence lower bounds are estimated following Lee et al. (2021). Standard errors are clustered by firm and year. ***, **, and * indicate statistical significance at the 1, 5, and 10 levels, respectively.

Panel A: Prior Maturity Structure

	First-Stage Model	Second-Stage Model	
	Dependent Variable	Dependent Variable	
	$SMD_{i,t}$	$NUMMF_{i,t}$	$DMF_{i,t}$
	(1)	(2)	(3)
SMD_{t-10}	0.125***		
	(23.957)		
$SMD\_IV_{i,t}$		**2.422*** **	**0.442*** **
		(12.436)	**(15.844)**
$LSIZE_{i,t}$	-0.049***	0.158***	0.020***
	(-46.810)	(11.670)	(10.234)
$ROA_{i,t}$	0.020	0.131	0.024*
	(1.427)	(1.289)	(1.671)
$MB_{i,t}$	0.016***	-0.021	-0.009***
	(9.224)	(-1.628)	(-4.945)
$EARNVOL_{i,t}$	0.091***	-0.602***	-0.125***
	(4.635)	(-4.119)	(-5.965)
$RETVOL_{i,t}$	-0.016***	-0.086***	-0.008*
	(-3.633)	(-2.739)	(-1.819)
$NUMEST_{i,t}$	0.004**	1.366***	0.233***
	(2.316)	(108.150)	(128.970)
$LOSS_{i,t}$	0.005	-0.356***	-0.051***
	(1.033)	(-9.689)	(-9.617)
$ISSUE_{i,t}$	-0.028***	0.175***	0.033***
	(-7.049)	(5.797)	(7.587)
$CONCENTRATION_{j,t}$	0.021	-0.544***	-0.120***
	(0.794)	(-7.634)	(-11.779)
$LITIGATION_{j,t}$	0.020***	0.177***	0.002
	(2.819)	(5.817)	(0.426)
Underidentification test:			
Anderson canon. corr. LM statistic	1414.234		
P-value	0.000		
Weak identification test:			
Cragg-Donald Wald F statistic	23.761		
5 Adjustment factor (Lee et al. 2021)	1.268		
5 *tF* standard error		0.247	0.035
β95 CI lower bound		1.938	0.373
Observations	33,602	33,602	33,602

Panel B: The Size of the Federal Reserve's Balance Sheet

	First-Stage Model	Second-Stage Model	
	Dependent Variable	Dependent Variable	
	$SMD_{i,t}$	$NUMMF_{i,t}$	$DMF_{i,t}$
	(1)	(2)	(3)
$FedAsset_{i,t}$	-0.012***		
	(-10.866)		
SMD_IV $_{i,t}$		**14.675*** **	**1.504*** **
		(9.946)	**(9.369)**
$LSIZE_{i,t}$	-0.063***	0.969***	0.094***
	(-59.135)	(10.004)	(8.904)
$ROA_{i,t}$	0.009	0.077	0.038**
	(0.874)	(0.455)	(2.084)
$MB_{i,t}$	0.016***	-0.244***	-0.029***
	(10.911)	(-7.611)	(-8.395)
$EARNVOL_{i,t}$	0.073***	-1.131***	-0.104***
	(4.982)	(-4.354)	(-3.684)
$RETVOL_{i,t}$	-0.013***	-0.030	-0.004
	(-3.414)	(-0.488)	(-0.577)
$NUMEST_{i,t}$	0.004**	1.382***	0.223***
	(2.450)	(49.927)	(73.857)
$LOSS_{i,t}$	-0.011**	-0.258***	-0.044***
	(-2.377)	(-3.273)	(-5.093)
$ISSUE_{i,t}$	-0.029***	0.603***	0.067***
	(-7.365)	(7.775)	(7.939)
$CONCENTRATION_{j,t}$	0.122***	-1.752***	-0.186***
	(3.492)	(-3.403)	(-3.311)
$LITIGATION_{j,t}$	0.026***	-0.190	-0.024*
	(3.881)	(-1.636)	(-1.930)
Underidentification test:			
Anderson canon. corr. LM statistic	117.921		
P-value	0.000		
Weak identification test:			
Cragg-Donald Wald F statistic	118.062		
5 Adjustment factor (Lee et al. 2021)	1		
5 *tF* standard error		1.475	0.161
*β*95 CI lower bound		11.783	1.189
Observations	37,574	37,574	37,574

Panel C: Military Expenditures

	First-Stage Model	Second-Stage Model	
	Dependent Variable	Dependent Variable	
	$SMD_{i,t}$	$NUMMF_{i,t}$	$DMF_{i,t}$
	(1)	(2)	(3)
$MilitaryExp_{i,t-2}$	0.021***		
	(7.503)		
$SMD\_IV_{i,t}$		**3.512*** **	**0.562*** **
		(17.252)	**(18.714)**
$LSIZE_{i,t}$	-0.063***	0.262***	0.033***
	(-69.786)	(17.796)	(15.006)
$ROA_{i,t}$	0.003	0.132**	0.037***
	(0.305)	(2.040)	(3.908)
$MB_{i,t}$	0.016***	-0.086***	-0.017***
	(12.988)	(-9.023)	(-11.927)
$EARNVOL_{i,t}$	0.078***	-0.340***	-0.059***
	(5.922)	(-3.598)	(-4.258)
$RETVOL_{i,t}$	-0.006*	-0.145***	-0.011***
	(-1.868)	(-6.272)	(-3.367)
$NUMEST_{i,t}$	0.005***	1.249***	0.221***
	(3.545)	(114.067)	(136.730)
$LOSS_{i,t}$	-0.010***	-0.315***	-0.049***
	(-2.582)	(-10.904)	(-11.372)
$ISSUE_{i,t}$	-0.027***	0.166***	0.029***
	(-7.748)	(6.416)	(7.537)
$CONCENTRATION_{j,t}$	0.015	-0.326***	-0.085***
	(0.650)	(-5.175)	(-9.111)
$LITIGATION_{j,t}$	0.028***	0.159***	0.003
	(4.792)	(6.394)	(0.841)
Underidentification test:			
Anderson canon. corr. LM statistic	1211.148		
P-value	0.000		
Weak identification test:			
Cragg-Donald Wald F statistic	19.671		
5 Adjustment factor (Lee et al. 2021)	1.332		
5 *tF* standard error		0.269	0.272
*β*95 CI lower bound		2.948	0.029
Observations	50,204	50,204	50,204

Table 10: Simultaneous Equations Model

This table reports the estimation of the two-stage model of the simultaneous equations framework. Panel A lists the first-stage OLS regression results for a firm's choice of debt maturity. Panel B presents the second-stage regression results of the association between short-maturity debt and the frequency (*NUMMF*) and likelihood (*DMF*) of management earnings forecasts. All variables are defined in Appendix A. Standard errors are clustered by firm and year. ***, **, and * indicate statistical significance at the 1, 5, and 10 levels, respectively.

	Panel A: First-Stage		Panel B: Second-Stage	
	Dependent Variable		Dependent Variable	
	$SMD_{i,t}$		$NUMMF_{i,t}$	$DMF_{i,t}$
	(1)		(2)	(3)
		***ResSMD*$_{i,t}$**	**0.066***	**0.022****
			(1.78)	**(4.04)**
$LEVERAGE_{i,t}$	-0.766***	$LSIZE_{i,t}$	0.062***	0.002***
	(-63.22)		(12.02)	(2.86)
$AssetMat_{i,t}$	-0.000	$ROA_{i,t}$	0.073	0.027***
	(-0.65)		(1.46)	(3.31)
$LSIZE_{i,t}$	-0.098***	$MB_{i,t}$	-0.056***	-0.010***
	(-24.51)		(-5.97)	(-7.47)
$LSIZE2_{i,t}$	0.004***	$EARNVOL_{i,t}$	0.051	0.006
	(17.89)		(0.74)	(0.52)
$STDRet_{i,t}$	1.031***	$RETVOL_{i,t}$	-0.075***	-0.002
	(8.58)		(-3.54)	(-0.56)
$REG_{i,t}$	0.032***	$NUMEST_{i,t}$	1.285***	0.225***
	(6.59)		(84.64)	(113.52)
$ABNEARN_{i,t}$	0.000***	$LOSS_{i,t}$	-0.327***	-0.048***
	(2.87)		(-12.97)	(-11.83)
$TERM_{i,t}$	0.016***	$ISSUE_{i,t}$	0.070***	0.011***
	(2.64)		(2.85)	(3.10)
$RATING_{i,t}$	-0.093***	$CONCENTRATION_{j,t}$	0.290**	-0.021
	(-19.87)		(2.06)	(-0.91)
$MB_{i,t}$	-0.014***	$LITIGATION_{j,t}$	0.104**	0.002
	(-9.71)		(2.54)	(0.26)
Industry FE	No	Industry FE	Yes	Yes
Year FE	Yes	Year FE	No	No
N	38,731		38,731	38,731
adj. R^2	0.298		0.355	0.422

Table 11: Robustness Checks

In this table, Panel A assesses the robustness of the results to alternative model specifications. Columns (1) and (2) limit the data to the subsample in which firms does not have outstanding private debt. Columns (3) and (4) control for firm fixed effects along with year fixed effects. Columns (5) and (6) limit to forecasts of quarterly earnings when calculating $NUMMF_{i,t}$ and $DMF_{i,t}$. Columns (7) and (8) replace $SMD_{i,t}$ with $NetSMD_{i,t}$, the proportions of maturing debt net of cash holding as the left-hand-side variable. Panel B employs different windows to measure debt maturity. *SMD1*, *SMD2*, *SM4*, and *SMD5* represent the proportion of debt maturing in 1, 2, 4, and 5 years, respectively. All variables are defined in Appendix A. Standard errors are clustered by firm and year. ***, **, and * indicate statistical significance at the 1, 5, and 10 levels, respectively.

Panel A: Alternative Model Specifications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	W/O Private Debt		*Firm FE*		*Quarterly Forecasts*		*Net SMD*		*Contol for Leverage*	
	$NUMMF_{i,t}$	$DMF_{i,t}$	$NUMMF_{i,t}$	$DMF_{i,t}$	$NUMMF_{i,t}$	$DMF_{i,t}$	$NUMMF_{i,t}$	$DMF_{i,t}$	$NUMMF_{i,t}$	$DMF_{i,t}$
$SMD_{i,t}$	**0.098*****	**0.021*****	**0.047***	**0.010*****	**0.057*****	**0.017*****			**0.088*****	**0.017*****
	(3.41)	**(4.90)**	**(1.81)**	**(2.60)**	**(3.78)**	**(4.70)**			**(3.10)**	**(4.12)**
$NetSMD_{i,t}$							**0.0002***	**0.000**		
							(1.71)	**(0.69)**		
$Leverage_{i,t}$									-0.222***	-0.030***
									(-3.89)	(-3.27)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes	No	No	No	No	No	No
Industry FE	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	38,095	38,095	51,719	51,719	51,719	51,719	51,719	51,719	51,719	51,719
adj. R^2	0.348	0.398	0.651	0.685	0.316	0.378	0.372	0.434	0.372	0.434

Panel B: Alternative Windows of Debt Maturity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	N = 1		*N = 2*		*N = 3*		*N = 4*	
	$NUMMF_{i,t}$	$DMF_{i,t}$	$NUMMF_{i,t}$	$DMF_{i,t}$	$NUMMF_{i,t}$	$DMF_{i,t}$	$NUMMF_{i,t}$	$DMF_{i,t}$
$SMDN_{i,t}$	**0.141*****	**0.018*****	**0.130*****	**0.019*****	**0.128*****	**0.024*****	**0.121*****	**0.027*****
	(4.93)	**(4.22)**	**(4.79)**	**(4.75)**	**(4.92)**	**(6.39)**	**(4.62)**	**(7.09)**
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	51,719	51,719	51,719	51,719	51,719	51,719	51,719	51,719
adj. R^2	0.372	0.434	0.372	0.434	0.372	0.434	0.372	0.434

Panel C: The Impact of Leverage Structure

Dependent Variable =	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	$NUMMF_{i,t}$				$DMF_{i,t}$			
Rank of Quartiles	1st	2nd	3rd	4th	1st	2nd	3rd	4th
***SMD*$_{i,t}$**	**0.041**	**0.090**	**0.148****	**0.252*****	**0.007**	**0.024*****	**0.028*****	**0.021****
	(0.70)	**(1.50)**	**(2.42)**	**(5.12)**	**(0.80)**	**(2.80)**	**(2.97)**	**(2.51)**
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	12,929	12,928	12,930	12,929	12,929	12,928	12,930	12,929
adj. R^2	0.371	0.415	0.387	0.300	0.415	0.483	0.464	0.348

VITA

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