Hedge Fund Activism and Debt Maturity Structure

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Abstract

We provide evidence that activist hedge funds significantly influence target firms' debt choices. After hedge fund activism (HFA), the proportion of long-term debt significantly increases in target firms. This debt maturity increase is correlated to post-HFA governance reforms. Post HFA, target firms issue more bonds than loans, such preference for bonds explains the increase in targets' debt maturity. However, we do not find that supply-side constraints influence this choice. Our findings indicate that target firms substitute their creditor-driven governance with a governance mechanism influenced by activist hedge funds.

Keywords: Hedge fund activism, Corporate Governance, Debt maturity

JEL Codes: G23; G30; G32; G34

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1. Introduction

Over the past couple of decades, activist hedge funds have become a significant force in shaping corporate policies around the world (Kahan and Rock, 2007; Bebchuk, Brav, and Jiang, 2015; Becht, Franks, Grant, and Wagner, 2017). Activist hedge funds influence various facets of target firms' business, from governance to operations and strategies (Brav, Jiang, and Kim, 2015; Aslan, 2021). This study examines the impact of hedge fund activism (HFA) on target firms' financing decisions. We focus on target firms' debt maturity structure (fraction of long-term debt maturing in more than three years) to understand how HFA affects a firm's choice of debt.

Literature suggests that HFA improves target firms' corporate governance, financial performance, and market value (Brav, Jiang, Partnoy, and Thomas, 2008; Clifford, 2008, Boyson and Mooradian, 2011). Activist hedge funds add value by influencing target firms' operating efficiency (Brav, Jiang, and Kim , 2015a), corporate innovation (Brav, Jiang, Ma, and Tian, 2018); divestitures and mergers & acquisitions (Boyson, Gantchev, and Shivdasani, 2017; Jiang, Li, and Mei, 2018; Hege and Zhang 2019; Wu and Chung, 2021). Activist hedge funds also curb managerial entrenchment (Boyson and Pichler, 2019; Gantchev, Sevilir, and Shivdasani, 2020) and play a significant role in post-HFA CEO recruitment (Keusch, 2020). However, empirical evidence on the influence of HFA on target firms' financing policy is relatively rare.

Existing HFA-literature sheds light on creditors' concern about potential wealth transfer from target firms' debtholders to their shareholders. Aslan and Maraachilan (2007), Klein and Zur (2011) report a significant reduction in bondholder wealth post-HFA. Li and Xu (2011) provide evidence on the expropriation of creditor wealth by analysing target firms' loan contracts;

recent evidence from Dahiya, Hayak, and Matthys (2020) and Feng, Xu, and Zhu (2021) further emphasise the adverse effects of HFA on creditors' wealth. On the other hand, Sunder, Sunder, and Wongsunwai (2014) concluded that HFA might not necessarily aggravate the "creditor – shareholder conflict" in the target firms. However, literature is relatively silent on target firms' financing preference following hedge fund interventions.

The literature on governance substitution emphasises that firms endogenously determine their choice of debt and their need for creditor monitoring based on their exposure to alternative governance mechanisms, such as product market competition and the market for corporate control (Boubaker, Saffar, and Sassi, 2018; Bharath and Hertzel, 2019). This study considers monitoring from activist hedge funds as an alternative governance mechanism available to target firms. In the context of corporate mergers and takeovers, Boyson, Gantchev, and Shivdasani (2017), Jiang, Li, and Mei (2018) have discussed HFA's value-enhancing role as an alternative governance mechanism. Nini, Smith, and Sufi (2012) point out that the consequences of creditor monitoring and governance through HFA are quite comparable. *"... it is instructive to note the resemblance between the findings in our article and the evidence provided by studies of activist hedge fund involvement in underperforming firms…. the broad similarity of the results suggests that corporate creditors provide governance to firm managers in much the same way as do equity holders…"* (Nini, Smith, and Sufi 2012, pp. 1718–1719). Therefore, we predict that in the presence of alternative monitors, i.e., the activist hedge funds, target firms depend less on creditor monitoring and increase their debt maturity as they switch their debt preference from short-term private loans to long-term public bonds.

Hence, we hypothesise that post-HFA, target firms prefer long-term debt because their governance reforms reduce the need for short-term creditor monitoring. Following Bharath and Hertzel (2019), we call this hypothesis the *Governance Substitution Hypothesis*.

Activist hedge funds are often criticised for extracting private benefits, i.e., rent seeking through information advantage, shareholder payouts and reimbursements (Coffee 2017; Coffee, Jackson, Mitts, and Bishop, 2019). There are concerns that hedge funds might influence target firms to raise debt as they pursue a short-term self-interest behind the activist agenda.[1] Hence, we also explore an alternative hypothesis - the *Self-interest Hypothesis*, which suggests that post activist interventions target firms' debt maturity increases are motivated by activist hedge funds' rent-seeking behaviour, hence, correlated with hedge fund manager payout demands, e.g. demands of share repurchases and expense and fee reimbursements, irrespective of targets' level of financial health.

We test our hypotheses using both aggregate debt maturity data from the balance sheet and incremental debt maturity data from new debt issues. Similar to Boyson and Pichler (2019), we collected HFA data for 2000 to 2017 from the SharkRepellent database provided by FactSet. We find that the median proportion of long-term debt (debt maturing in more than three years) increases by more than 19% in the three years following HFA. Using a propensity-score matched control sample, we confirm that the debt maturity structure of target firms increases significantly post-HFA.

Analyses of incremental debt show, post-HFA, target firms borrow more through bonds than loans. The amounts raised through private loans decreases post HFA but the maturity and loan spread of the new loans raised by target firms, post-HFA, do not differ significantly compared to pre-activism-period loans. These findings suggest that post-HFA reduction in target firms' demand for new loans are not due to supply-side factors.

Our analysis shows that, compared to loans, the fraction of debt raised by target firms through bonds increases considerably in the years following hedge fund intervention. Following

[1] "BlackRock's Fink Sounds the Alert" – Wall Street Journal, March 25, 2014 (accessed on 3rd March 2020)

Bharath and Hertzel (2019), we interpret this as evidence of governance substitution in target firms post-HFA. Finally, our empirical evidence shows that the predicted fraction of debt raised through bonds subsumes the impact of HFA on debt maturity. This evidence identifies "governance substitution" as the channel through which HFA affects the debt maturity of target firms.

We conduct several alternative analyses to test the robustness of our findings. 1) We find that post-HFA, the debt maturity changes are significant only when target firms are not hostile to the activist hedge funds. This may suggest that target firms' observed debt maturity changes may not be due to voluntary changes instrumented by target firm managers irrespective of activist interventions. 2) For the cleaner identification of the impact of HFA on debt maturity structure, we also analyse a subsample of conversions from Schedule 13G[2] to 13D filings. 3) In addition, we use different proxies of debt maturity profile, alternative model specifications, and alternative control groups.

We also investigate the *Self Interest Hypothesis* an alternative to the *Governance Substitution Hypothesis,* using the subsample of target firms that went through private settlement with the activist hedge funds, activism campaigns that demanded board representation, expense reimbursement, and target firms those conducted share repurchase programs post-HFA. However, we do not find any evidence to support that activists' self-interest is instrumental in significantly increasing targets' debt maturity.

This study contributes to the literature in at least four ways. First, we contribute to the literature by documenting a significant influence of HFA on target firms' debt preferences. To our knowledge, this is the first study to investigate target firms' debt choices post-HFA. Second,

[2] Investors who hold economic ownership of more than 5% but less than 20% are eligible to file a Schedule 13G form subject to the condition that they do not intend to influence control or policies in the investee firms, i.e., they only hold a passive investment in firms.

we contribute to the recent literature on the governance substitution between alternative monitoring mechanisms (Demsetz and Lehn, 1985; Boubaker, Saffar, and Sassi, 2018; Bharath and Hertzel, 2019). Our empirical findings suggest that target firms consider HFA as an effective and alternative governance mechanism; hence, they change their debt maturity structure - to substitute their short-term creditor-driven governance mechanism with monitoring provided by activist hedge funds.

Third, we add to the growing literature on the impact of HFA on the debtholders of target firms (see, e.g., Klein and Zur, 2011; Li and Xu, 2011; Sunder, Sunder, and Wongsunwai, 2014; Dahiya, Hallak, and Matthys, 2020). Previous studies document debtholders' negative responses to HFA. In contrast, we document a demand-driven preference for long-term debt among target firms in the period following HFA. Our study finds no evidence that supply-side constraints significantly affect target firms' debt maturity choices in the years following activism.

Finally, we extend the literature on the determinants of debt maturity structure (Grossman and Hart, 1982; Flannery, 1986; Diamond, 1991; Rajan and Winton, 1995; Guedes and Opler, 1996; Stohs and Mauer, 1996; Datta, Iskandar-Datta, and Raman, 2005; Brockman, Martin, and Unlu, 2010; Custodio, Ferreira, and Laureano, 2013; Parise, 2018). Our study emphasises the monitoring role of activist investors in altering the debt maturity choices of target firms.

The remainder of this paper proceeds as follows. Section 2 explores the relationship among HFA, creditor monitoring and debt maturity structure of a firm. Section 3 describes our sample along with descriptive statistics of the key variables. Section 4 reports our main empirical findings on target firms' debt maturity changes post-HFA. Using data from new debt issues, section 5 provides evidence in support of the Governance Substitution Hypothesis. Section 6 explores possible alternative explanations, and finally, Section 7 sets forth our conclusions.

2. HFA, Creditor Governance, and Debt Maturity

We hypothesise that post-HFA, target firms are able to increase their debt maturity structure, because monitoring from activist investors brings down target firms' demand for short-term creditor-driven governance. The literature on creditor-driven governance emphasises the significance of creditors' influence on corporate governance even in the absence of a default (Denis and Wang, 2014).

Corporate finance literature has extensively explored the costs and benefits of having short-term creditors as monitors of corporate affairs. Short-term debt may signal project quality to the market (Flannery, 1986); could mitigate moral hazard problems through frequent debt renegotiations and strict monitoring (Barclay and Smith, 1995; Berger, Espinosa-Vega, Frame, and Miller, 2005; Custodio, Ferreira, and Laureano, 2013); reduces the problem of debt overhang (Myers, 1977). However, short-term debt involves frequent rollovers; it also increases firms' exposure toward costly refinancing failures, unfavourable refinancing, and the liquidation risk (Diamond, 1991; Brunnermeier and Yogo, 2009; He and Xiong, 2012; Almeida, Campello, Laranjeira, and Weisbenner, 2012; Diamond and He, 2014; Parise, 2018; Della Seta, Morellec, and Zucchi, 2020). Hence, post-HFA, when target firms are under the scrutiny of activist hedge funds, the net benefit of short-term debt might not be very attractive to target firms.

Along with the debt maturity structure, firms often combine their choice of debt sources (i.e., private or public debt) to optimise creditors' motivation to monitor (Fama, 1990; Rajan, 1992; Diamond, 1993). Due to the informational advantage, banks are considered to be more suitable than bondholders to monitor firm managers (Diamond 1991; Rajan 1992; Chemmanur and Fulghieri, 1994). Hence, post-HFA, if target firms reduce their dependence on creditor-driven governance then not only it will affect targets' debt maturity structure, but it should also have

an impact on targets' choice of public versus private debt - similar to the governance substitution effect documented by Boubaker, Saffar, and Sassi (2018) as well as Bharath and Hertzel (2019). Hence, in this paper, we hypothesise that HFA provides an opportunity for the target firms to reduce their dependence on short-term creditor-driven monitoring and allow the incumbent managers to attain their preferred debt maturity structure.

3. Data and Key Variables

3.1 HFA – Sample Description

We collect data related to activist campaigns from the SharkRepellent activism database provided by FactSet. The SharkRepellent database provides a campaign-wise history of hedge fund interventions along with various tactics employed by hedge funds/target firms, management responses and filing dates for original Schedule 13D forms. The SharkRepellent identifies activism campaigns based on activist investor categories. We collect data related to campaigns initiated by activist hedge funds. The US Securities and Exchange Commission (SEC) requires activist investors to file a Schedule 13D form within 10 days after crossing a 5% ownership threshold, along with their activist agenda. The 13D filings are considered as public announcements of activist investor campaigns against target firms. Among other information, Schedule 13D requires filers to disclose their identity, investor type (e.g., individuals, corporations, mutual funds, hedge funds, etc.), percentage stake held and the purpose of the activism.

We collect data over the sample period 2000 to 2017. Our original sample of HFA filings included 2,956 activism events initiated by hedge funds. As we plan to compare the debt maturity of target firms five years before and after hedge fund interventions, hence we only

considered the first activism event for any target firm within five years.[3] This filtering reduced our HFA sample to 1,998 events. Further, following Brav, Jiang, Partnoy, and Thomas (2008) and Boyson and Pichler (2019), we exclude campaigns related to bankruptcy, business reorganization, merger risk-arbitrage opportunities and financial firms because target firms of such activism campaigns have unique capital structure requirements. This provides us with the final sample of 1,263 activism campaigns. We manually categorise the stated objectives of the activist hedge funds and target firms' resistance to activism based on the information available on the campaign documents. Table 1 reports the number of HFA events across the sample years from 2000 to 2017 along with their stated objectives.

----------Table 1----------

Corporate governance is one of the most frequently stated objectives of activism campaigns, at almost 66% of campaigns, followed by *business strategies* (55%), *value maximization* (43%), *sale of target* (31%), and changes in *capital structure* (27%). The stated objectives are not mutually exclusive, as activists often state multiple objectives in 13D filings. Brav, Jiang, Partnoy, and Thomas (2008) provide an exhaustive list of stated objectives of activism campaigns.

Under the *corporate governance* objective, the focus revolves primarily around removing takeover defences, removal of CEOs or other officers, changes to executive compensation, or disclosure of more information. Operational efficiency, M&A or other growth-oriented strategies fall into the category of *business strategies*. Changes in *capital structure* revolve around the distribution of free cash flow to shareholders and/or the use of leverage in the target's capital structure. *Value maximization* is a broad objective involving increasing

[3] We exclude any subsequent activism campaigns against the target firms to avoid any spillover effect of previous campaigns. We acknowledge that such filtering reduces the total number of activism campaigns within our sample; however, it also provides a cleaner sample to identify the effects of HFA on firms' debt maturity structure.

shareholder wealth through adequate measures suggested by the activist hedge fund. Finally, *sale of target* refers to activist hedge funds asking target firms to divest some or all businesses/assets.

In our sample, about 5% of the targets adopted poison pills[4] post-HFA, about 25% of the HFA campaigns were privately settled, and activist hedge funds got corporate board representation in about one-third of the campaigns (see Table 1A in the internet appendix). There are 88 campaigns in which hedge funds with existing passive ownership in target firms decided to become involved in activism, i.e., hedge funds switched from 13G to 13D filings to file their activist agendas. We also report positive market reactions to HFA. In the subsamples of different campaign objectives, cumulative abnormal returns (CAR) on target firms' stock vary from 2.5% to 4.8% over the window -10 to +10 days around 13D filings.

We match the target firms in our sample against a group of control firms selected based on CRSP and COMPUSTAT data using the propensity score matching technique. Matched control firms are chosen from the same two-digit SIC industry codes and with the closest propensity score to the HFA targets. Following Brav, Wei, Song, and Xuan (2018), the propensity scores are estimated with a logistic regression, where the predictive variables are the important determinants of activism, including *firm size*, *market-to-book ratio (MB)*, *return on assets (ROA)* measured at time *t-1*, *leverage* measured at time *t-1*, and change in *ROA* from *t-3* to *t-1*. A detailed description of all variables is provided in the appendix. The CRSP and COMPUSTAT data required for the matching process brings down our final sample size to 830 target firms and 830 comparable control firms. Our final sample size is quite comparable to the sample size of Boyson and Pichler (2019) and Dahiya, Hayak, and Matthys (2020).

[4] A poison pill is a defence tactic making takeover or raiding attempts more difficult by granting additional shares at discounted values to existing shareholders.

3.2 Debt Maturity Structure and Other Variables

Following the literature on debt maturity structure, we calculate our primary variable of interest, debt maturity structure of a firm, in terms of the proportion of *debt maturing in more than three years* to *total debt* (Barclay and Smith, 1995; Custodio, Ferreira, and Laureano, 2013). We collected data related to debt maturity and other control variables from the Compustat Industrial annual database over the sample period 1995 to 2017.

We collect new loans and bonds issuance information from the Thomson Reuters 'Refinitiv Eikon' database, which provides access to global syndicated loans and bonds data through LPC DealScan and the SDC new issuance database. We use debt issuers' six-digit CUSIP code to identify loans and bonds issued by target firms from 1995 to 2017. We collect data related to i) loan and bond *issue size* (US million dollars) - identified in the database as Package Amount or Principal Amount (All Markets); ii) loan and bond *tranche size* (US million dollars) - identified in the database as Tranche Amount or Principal Amount (This Market); iii) loan and bond *issue* and *maturity dates*; iv) All In Drawn *loan spread* (basis points above LIBOR); and v) bond *coupon rate* (in percentage).

3.3 Control Variables

Control variables are also collected from the Compustat and CRSP databases. Following the literature, we control for various demand-side factors of debt maturity, including *firm size*, *firm size*^{2}, *leverage*, *MB*, *abnormal earnings*, *asset maturity*, *asset volatility*, *tangibility*, firm age *(log(age))*, *term spread*, and *recession dummy*. These firm characteristics control for several known determinants of debt maturity structure based on various existing theories, including agency costs, information asymmetry, liquidity risk, and signalling hypothesis (Brick and Ravid, 1985; Flannery, 1986; Diamond, 1991; Barclay and Smith, 1995; Johnson, 2003; Custodio, Ferreira, and Laureano, 2013). We also append 'fixed effects' into the regression

frameworks to control for unobserved heterogeneity across years, industries, and firms. The appendix provides detailed descriptions of all variables.

3.4 Descriptive Statistics and Trend

We compare the key characteristics of the target group of firms against the control group. Table 2 reports comparative summary statistics for target and control firms for the year before HFA. All variables are winsorized at 1% and 99% levels. Target and control firms are indistinguishable from each other in terms of differences between their mean and median values. Table 2 reports firm-level characteristics such as total assets, total debt, the natural logarithm of market capitalization, ROA, R&D, leverage, MB, sales growth, the proportion of debt maturing in more than three years, CAPEX, abnormal earnings, cash holdings, and asset maturity.

----------Table 2 ----------

In the year before the activist intervention, on average, target firms had 35% of their total debt maturing in more than three years compared to 30% long-term debt in control firms that year. Target and control firms have similar leverage, ROA, R&D, and CAPEX ratios. The differences in the mean value of these characteristics between control and target firms are also provided in Table 2. This table shows that the differences between the control and target groups are not significant. For the variables to be considered significantly different between the groups, both test statistics should be significant at the 10% level, and at least one of them should be significant at the 5% level of significance (Brav, Jiang, Partnoy, and Thomas, 2008).

---------- Figure 1----------

We investigate the debt maturity structure of the target firms before and after the year of HFA; we also compare this trend against the debt maturity structure of the matched control group of

firms. Figure 1 shows the proportion of the median value of debt maturing in more than three years for the target and control groups, over -3 to +3 years around hedge fund intervention. Figure 1 demonstrates that the median proportion of long-term debt of target firms increases more than 19% in the post activism years; however, the debt maturity structure of the control group of firms experiences little change over this period.

4. HFA and Debt Maturity Structure

Our initial univariate analysis reported in Figure 1 indicates that, compared to the control group of firms, the debt maturity structure of target firms increases substantially only in the years following hedge fund interventions. This finding establishes the pre-intervention parallel-trend assumption between target and control firms. Also, it provides initial support to our conjecture on the expected changes in debt maturity structure post-HFA. However, this relationship between HFA and debt maturity could be endogenous.

Activist hedge funds do not target firms at random. The factors that activist managers might consider identifying target firms could also affect the debt maturity structure of the target firms. There are two potential endogeneity concerns, one pertaining to omitted variable bias and the other relating to selection bias. We attempt to account for the possible omitted variables by introducing adequate fixed effects and an extensive list of control variables in the regression specifications. To control for selection bias, we estimate the regression model on a sample of target and control group firms. Following Brav, Wei, Song, and Xuan (2018), we adopt the following regression framework:

$$DebtMaturity_{it} = \alpha_i + \alpha_t + \beta_1.(Target_i) \times (Post_{it}) + \beta_2.(Post_{it}) + \gamma.Control_{it} + \varepsilon_{it} \quad (1)$$

In equation (1), *i* and *t* are subscripts representing firm and year observations, respectively, and α_i and α_t represent firm and year fixed effects capturing unobserved heterogeneity across firms

and years, and ε_{it} is the error term. *Target*$_i$ is a dummy variable equal to 1 for target firm *i* and *Post*$_{it}$ is a dummy variable equal to 1 for firm–year (*it*) observations after the intervention year, i.e., the year in which HFA was launched, followed by 3 years. These post-event years are taken as pseudo-event years for control firms. *Control*$_{it}$ is a vector of control variables. The key coefficient of interest is (β_1), indicating a differential change in target firm debt maturity structure post-HFA as compared to control firms. The coefficient (β_2) pertains to whether the changing trend has anything to do with the time variations.

----------Table 3 ----------

Table 3 provides estimation results of the panel regression described in equation (1) using a sample of target and control firms over the sample period. We report the estimated coefficients across five alternative specifications of the regression model (Model 1 to Model 5) in Table 3. Standard errors, clustered at the firm level, are displayed in parentheses. The total of firm–year observations is 28,219 for Model 1 and 22,019 for other models. The control variables used in these models are discussed in Section 3.3. We use firm (or industry) and year fixed effects in all the models. The literature identifies 'product-market competition' as one of the governance mechanisms which could affect the debt choices of firms (Boubaker, Saffar, and Sassi, 2018); we include *Herfindahl-Hirschman Index (HHI)* as one of our control variables in Model 5. To control for any existing trend in debt maturity structure, we also include a *trend* variable in our analysis.

In all models reported in Table 3, the debt maturities of target firms increase after HFA relative to the control group. The coefficient supports a 0.04 point (11% of targets' pre-activism debt maturity profile) increase in debt maturity for target firms. This finding implies that the long-term component of debt increases in the target firm total debt structure after HFA.

To further confirm that some pre-event trend does not determine the results reported in Table 3, we estimate the dynamics of the debt maturity from three (five) years before to three (five) years after HFA (We report these results in Table 2A of the internet appendix.). Following Brav, Wei, Song, and Xuan (2018), we use the regression specification provided below:

$$DebtMaturity_{it} = \alpha_i + \alpha_t + \sum_{-3}^{+3} \beta_k \{d[t+k]_{it} \times (Target_i)\} + \sum_{-3}^{+3} \lambda_k \, d[t+k]_{it} + \gamma . Control_{it} + \varepsilon_{it} \quad (2)$$

Here, the dummy variables $d[t-3]_{it} \ldots d[t+3]_{it}$ represent the firm-year observations from three years before to three years after the intervention year. This specification helps satisfy the parallel trends assumption for our regression specification.

This analysis satisfies the pre-intervention parallel trend assumption – none of the coefficients associated with pre-intervention years is statistically significant. However, after HFA, there is a significant increase in the debt maturity profile of target firms relative to control group firms. The coefficients associated with *Target$_i$*d[t+1]* and *Target$_i$*d[t+2]* are found to be positive and statistically significant, showing that debt maturity increases by 0.05 points in the first and second year after HFA, respectively. In an alternative specification, we extend the time period to five years after HFA. In this model, the coefficients of *Target$_i$*d[t+1]* and *Target$_i$*d[t+2]* are also positive and significant. Additionally, we find that coefficients of *d[t+4]* and *Target$_i$*d[t+4]* are significant and similar in magnitude, but with opposite signs; hence, the combined effect of year *t+4* on debt maturity of target firms is insignificant. These findings support our hypothesis that HFA may influence target firms to increase their debt maturity structure post-HFA.

4.1 Robustness

We test the robustness of our findings related to the possible influence of hedge fund interventions on the debt maturity structure of target firms. In these tests, (i) we use an

alternative methodology (Tobit regression) to account for the truncated nature of our main variable of interest; (ii) we use an alternative control group of firms, (iii) we explicitly control for the endogenous relationship between leverage and debt maturity (Johnson, 2003), and (iv) we use an alternative proxy for debt maturity structure. For brevity, we report these analyses in the internet appendix – Table 3A.

The proportion of debt maturing in more than three years is a 'limited' dependent variable, truncated at 0 and 1; thus, we estimate a Tobit regression as part of our alternative regression specification. Table 3A, column (1), reports Tobit model results with debt maturity as a dependent variable. A statistically significant coefficient of $Target_i*Post_{it}$ variable in this model reconfirms our earlier findings, that compared to the control group; target firm debt maturity structure increases significantly three years post-HFA.

We consider a separate set of control group firms within the same two-digit SIC industry codes and firms having the closest proportion of debt maturing in more than 3 years. Our results using this alternative control group (reported in internet appendix, column 2 of Table 3A) are qualitatively similar to our original findings.

Leverage serves as one of our control variables, yet it could be endogenous to the firm's debt maturity structure. We estimate a three-stage least square (3SLS) in a joint endogenous framework (reported in internet appendix, column 3 of Table 3A). The results are qualitatively similar to those reported in Table 3. All the models indicate that the debt maturity of target firms increases after HFA. We also use an alternative measure of debt maturity, i.e. the long-term debt component as a proportion of total debt as. Long-term debt (i.e., debt maturing after one year) is a quite broad definition of debt maturity structure, hence, our finding in this model

is weaker but qualitatively similar to our previous results (reported in internet appendix, column 4 of Table 3A).[5]

5. Governance Substitution and Debt Maturity Post-HFA

5.1 Evidence from stated purposes of activism

To test the *Governance Substitution Hypothesis*, we investigate debt maturity changes in subsamples based on the stated objectives of activism, i.e., *Corporate Governance*, *Capital Structure*, *Value Maximization*, *Business Strategies*, and *Sale of Target*. The *Governance Substitution Hypothesis* implies that activism campaigns aimed at corporate governance improvements may influence post-HFA debt maturity increases because, with improved corporate governance, target firms require less monitoring from short-term creditors. On the other hand, activism campaigns that demand capital structure changes in target firms may also hold some implications for target firms' future debt maturity structure. However, the association between activism objectives and debt maturity changes remains unclear for the remaining three stated objectives. Table 4 reports estimated parameters of debt maturity structure models for target firms using subsamples of stated activism objectives. Note that a significant increase in debt maturity for target firms in the *corporate governance* subsample might not establish that an increase in debt maturity is related to governance improvement. However, an insignificant change in debt maturity structure in the *corporate governance* subsample may raise questions about the validity of the *Governance Substitution Hypothesis*.

[5] We also consider the absolute values of debt maturing in more than 3 years (log (1 + (DLTT-(DD2+DD3)))) as our dependent variable. After HFA, there is a significant increase in the absolute values of debt maturing in more than 3 years - in the first year after HFA. Moreover, we find no statistically significant impact from HFA on the overall leverage (total debt to total asset ratio) of the target firms. We also introduce cohort-based fixed effects in our regression framework, i.e., firm-by-cohort and year-by-cohort fixed effects (Gormley and Matsa, 2011). For each activism year, we construct a cohort of target and control firms using all firm-year observations. This helps to control for various changes occurring simultaneously across target and control firms around the activism years. Our original findings hold in this analysis as well.

---------- Table 4 ----------

The results reported in Table 4 confirm that debt maturity significantly increases for campaigns with *corporate governance* objectives, as expected based on the *Governance Substitution Hypothesis*. We also find that post-HFA, debt maturity increases for campaigns with *capital structure* and *value maximization* objectives. In contrast, for the subsample with *sale of target* and *business strategy* objectives, there is no significant increase in the average debt maturity of the target firms.

The post-HFA increase of debt maturity in the *corporate governance* subsample support the *Governance Substitution Hypothesis*. However, having corporate governance as the stated objective may not indicate that an intervention to change the governance practices of the target firm has been successfully implemented. To find a direct association between HFA–induced corporate governance interventions and debt maturity changes in target firms, we further restrict our sample to only those target firms who respond to activists' stated governance reforms by making adequate amendments in their corporate governance practices. These governance-related enhancements take the form of amendments in staggered board structure, poison pills, the board size, independent directors, or the overall board structure.

In the subsample of target firms with identifiable governance response, about 70% of target firms respond by making changes to board size, by introducing more independent directors; about 9% remove incumbent CEOs, change the compensation structure of CEOs, or separate the role of CEO and board chairman; 12% make changes in the shareholder rights, such as removal of poison pill provisions; and 19% make shareholder-friendly (enhance shareholder rights) changes in the firm bylaws and charters, such as declassification of the board. This subsample analysis helps to disentangle further the role of HFA as a corporate governance

mechanism in target firms. Table 5 reports our findings relating to debt maturity structure and activism-initiated governance reforms.

---------- Table 5 ----------

The findings of our analysis suggest that the positive influence of HFA on debt maturity channels through HFA–initiated governance interventions. Post activism, debt maturity increase is observable only for target firms who amend their corporate governance practices in response to activist demands. On the other hand, target firms that fail to respond to governance-related activism initiatives show no increase in debt maturity structure. This result supports the *Governance Substitution Hypothesis* - post-HFA, target firms that respond to hedge fund monitoring demand less monitoring from short-term creditors, as a result, their debt maturity increases.

5.2. Evidence from New Debt Issuances

The following analyses compare target firms' new loans and bond issues before and after HFA to identify changes in target firms' demand for creditor monitoring post-HFA. The role of private debt in monitoring corporate affairs is well discussed in the literature (Rajan and Winton, 1995; Chava and Roberts, 2008). Bharath and Hertzel (2019) provide evidence that, in the presence of alternative governance mechanisms, firms may reduce their demand for creditor monitoring, which in turn may affect their choice of debt, i.e., firms substitute their private debt or bank loans with long-term public debt or bonds. Since, on average, bank loans are shorter-term than bonds (Barclay and Smith, 1995); hence, if target firms switch from loans to bonds after hedge fund interventions, then such a change in their debt preference may explain the observed debt maturity change in target firms.

5.2.1 Demand or Supply Constraints?

In comparison to the balance sheet value of debt, the data from new debt issuances provide insight that may be associated with the supply- and demand-side of the debt. For example, maturity and loan cost could indicate supply-side constraints (Custodio, Ferreira, and Laureano, 2013). This is particularly relevant for the syndicated loan market dominated by large institutions, banks, and private lenders. Specifically, in the context of HFA, one may expect that supply-side constraints could lead to a significant reduction of new loan maturity. Sunder, Sunder, and Wongsunwai (2014) report that post-HFA, for some activism campaigns, the cost of bank loans increases for target firms due to bankers' concern over wealth expropriation by activist hedge funds.

We identify 2,240 loans (3,300 loan tranches) issued by 430 target firms over the sample period. Our bond sample includes 2,316 issues (2,450 tranches) from 387 target firms. The sample includes new debt issues by target firms from 5 years before to 5 years after hedge fund interventions. Table 4A in the internet appendix reports the descriptive statistics of these loans and bonds. We compare average and median values of *issue size*, *tranche size*, and *maturity* and *spread* (*coupon rate*) for loans (bonds) of target firms 3 years before and 3 years after HFA. This comparison shows that following HFA, the average loan size of target firms decreases while the average bond issue size increases significantly, coupled with a decrease in coupon rates. On the other hand, we find evidence that average loan maturity and average loan spread increase as well. The increased average loan spread may suggest that post-HFA, supply-side constraints from lenders influence target firms to borrow from the (relatively long-term) bond market. Hence, using a regression framework, we further analyse changes in target firm loan issue size, maturity, and spread post-HFA.

---------- Table 6 ----------

Table 6 presents the results from regression analysis of target firm *loan size* (natural logarithm of loan *issue size* in US million dollars), *loan maturity* (in years), and *loan spread* (natural logarithm of All in Drawn Spread basis points above LIBOR). The regression models identify changes in the dependent variables post-HFA using dummy variable, *Post (3 years) [Post (5 years)]*, which takes the value 1 for the three years [five years] following HFA and 0 for the three years [five years] before HFA. All models reported in Table 6 include control variables related to various firm characteristics, such as firm size, leverage, ROA, MB, cash holdings, tangibility, firm age, and firm default scores. For loan size and loan spread analysis, we include the maturity of loans issued as a control variable. All models include industry and year fixed effects.

The estimation results show that the coefficients of *Post (3 years)* and *Post (5 years)* variables are negative and statistically significant for the loan size regressions. This finding shows that post-HFA, target firms raise significantly smaller loans compared to the pre-HFA period. However, for loan maturity and loan spread, the coefficients of dummy variables *Post (3 years)* and *Post (5 years)* are not statistically significant. This indicates that supply-side constraints may not explain target firms' reduced loan size following HFA. Hence, post-HFA increased (decreased) average bond (loan) size of the target firms may reflect a shift in target firms demand for (against) public (private) debt.

---------- Figure 2 ----------

5.2.2 . HFA and Substitution of Loans with Bonds

Following Bharath and Hertzel (2019), we investigate whether, post-HFA, target firms' reduced demand for private debt (loans) is associated with their greater demand for long-term public debt (bonds). Figure 2 shows the trends in average issue size of loans and bonds issued by target and control group firms from 3 years before to 3 years after HFA. For target firms,

average loan size shows a declining trend, while the average bond size for target firms increases in the years following HFA. However, no such trend is visible for loan and bond issue sizes in the control sample. This trend indicates a possible substitution of loans through bond issues in the target firms following hedge fund interventions. We further investigate this possible substitution using linear regression and probit models similar to the analyses provided by Bharath and Hertzel (2019).

----------Table 7 ----------

To analyse target firms' increasing reliance on bonds, we calculate (*Bond_frac*$_{it}$), the fraction of newly issued debt raised through bonds by firm *i* in year *t*, as follows:

$$Bond\_frac_{it} = \frac{BondIssueSize_{it}}{BondIssueSize_{it} + LoanIssueSize_{it}}$$

An increase in *Bond_frac*$_{it}$ captures the firm's increasing preference for bonds over loans. Using a difference-in-differences regression framework, we test whether this variable increases significantly for target firms after HFA in comparison to control firms. We also create an indicator variable (*Bond_pref*$_{it}$), which takes the value 1 where *Bond_frac*$_{it}$ > 0.5, and 0 otherwise. The indicator variable *Bond_pref*$_{it}$ identifies firms that substitute their loans with bonds; this variable is similar to the indicator variable used by Bharath and Hertzel (2019)[6] in their analysis of governance substitution. We estimate the following linear regression/probit models to analyse the influence of HFA on target firms' preference for bonds over loans:

$$Bond_{it} = \alpha + \beta_1(Target_i) + \beta_2(Post_{it}) + \beta_3(Target_i) \times (Post_{it}) + \gamma.Control_{it} + \varepsilon_{it} \quad (3)$$

$$Bond_{it} = \alpha + \beta_1(Target_i) + \sum_0^{+3} \lambda_k\, d[t+k]_{it} + \sum_0^{+3} \gamma_k \{d[t+k]_{it} \times (Target_i)\} + \gamma.Control_{it} + \varepsilon_{it} \quad (4)$$

[6] The indicator variable used by Bharath and Hertzel (2019) takes the value 1 when firms issue loans and 0 when they issue bonds. Our variable *Bond_pref*$_{it}$ also takes into account the case where firms might issue both loans and bonds.

where the dependent variable $Bond_{it}$ refers to the variable *Bond_frac*$_{it}$ in linear regression models and *Bond_pref*$_{it}$ in probit models. The model described in equation (3) uses a dummy variable $Post_{it}$ to identify the post-HFA period up to 3 years, whereas in the model described in equation (4), the dummy variable $d[t+k]_{it}$ identifies each of the three post-activism years individually. The coefficients β_3 and γ_k capture the impact of HFA on target firms in comparison to the control group. All models include control variables discussed earlier as well as industry and year fixed effects. All standard errors are clustered at the firm level.

The coefficients reported in Table 7 show that β_3 is positive and significant at the 5% level for both *Bond_frac*$_{it}$ and *Bond_pref*$_{it}$. However, for the models with individual year dummies, all γ_k coefficients are positive and γ_1 is found to be statistically significant at the 10% significance level. The sum of all γ_k coefficients are found to be significant at the 5% level for both linear regression and probit models. This evidence is consistent with the *Governance Substitution Hypothesis*, that post-HFA, target firms rely less on short-term creditor monitoring; hence, they substitute their shorter-term loans with relatively long-term bond issues.

Finally, we test whether the predicted values of *Bond_frac*$_{it}$ and *Bond_pref*$_{it}$ from the models presented in Table 7 explain the debt maturity structure of target firms post-HFA. Table 8 reports regression models similar to the models reported in Table 3 using the sample of target and control firms with new loan and bond data. We use the predicted values of *Bond_frac*$_{it}$ ($\widehat{Bond\_frac}_{it}$) from Model 1 estimated in Table 7. The predicted values of *Bond_pref*$_{it}$, i.e. $\widehat{Bond\_pref}_{it}$, is determined based on $\widehat{Bond\_frac}_{it}$; the indicator variable $\widehat{Bond\_pref}_{it}$ takes the value 1 for above average $\widehat{Bond\_frac}_{it}$ values, and zero otherwise.

Table 8 reports that in the model without $\widehat{Bond\_frac}_{it}$ or $\widehat{Bond\_pref}_{it}$, the coefficient of the variable ($Target_i \times Post_{it}$) is positive and significant, confirming our earlier findings that post hedge fund intervention debt maturity of target firms increases significantly more than the

control group. However, in the models with $\widehat{Bond\_frac}_{it}$ or $\widehat{Bond\_pref}_{it}$, the coefficient of the variable $(Target_i \times Post_{it})$ is insignificant, while the coefficients of $\widehat{Bond\_frac}_{it}$ and $\widehat{Bond\_pref}_{it}$ are positive and significant. This result suggests that target firms' increased preference for bonds is a channel through which HFA may affect the target firm debt maturity structure. This evidence supports the *Governance Substitution Hypothesis*.

----------Table 8 ----------

6. Causality and Alternative Explanations

Our empirical findings thus far support the hypothesis that HFA affects debt maturity changes in target firms; however, these analyses do not establish a causal relationship between HFA and debt maturity changes. Establishing causality is difficult, as we cannot assign random target firms to activist hedge funds; further, it is difficult to identify a true exogenous shock that may affect only one variable. In the absence of such a natural experimental setup, we seek alternative explanations for the reported correlation between HFA and debt maturity of target firms, which may help support or refute a possible causal relationship between them.

6.1 Voluntary Changes to Debt Maturity Structure

One alternative explanation for the reported correlation is that target firm managers voluntarily change their debt maturity structure with no influence from HFA. To test this alternative explanation, we classify target firms based on their responses to activism initiatives. Following Boyson and Pichler (2019), we divide target firm responses into three categories: hostile resistance, moderate resistance, and no resistance. Target *hostile* resistance could involve responses such as filing lawsuits against hedge funds, adoption of classified board structures, amendment of golden parachutes, and limiting the ability of shareholders to call special meetings, among other measures. *Moderate* resistance refers to adjournment of meetings,

amendments in advance notice requirements, and acting against the wishes of hedge funds, among other actions. *No resistance* includes all other measures that do not include *hostile* or *moderate* resistance to HFA. We estimate regression models similar to equation (1) for the subsamples of target firms with *hostile*, *moderate*, and *no resistance* to HFA categories. Panel A of Table 9 reports the estimation results of this analysis.

If debt maturity changes are voluntarily implemented by firm managers, then we would expect the proportion of debt maturing in more than 3 years (dependent variable) to significantly increase in all target firms after HFA, irrespective of target firms' response to HFA. Thus, the coefficients of the variable $Post_{it}$ in the regression models reported in Panel A of Table 9 are expected to be positive and significant for all subsamples based on target firm response. However, the results show that the debt maturity structure significantly increases only for the *no resistance* subsample. This finding indicates that changes in debt maturity structure following HFA may not be voluntary; rather, this change might be influenced by HFA. This result further supports the *Governance Substitution Hypothesis* as non-hostile managers are more likely to utilize the benefits of activists' monitoring than the hostile ones.

We also classify target firm hostile responses based on their adoption of a poison pill after HFA. 'Poison pill' involves methods adopted by firm managers to deter hostile takeovers. The estimation in Panel A of Table 9 reports the result for the subsamples of target firms that adopted poison pills post-HFA and those firms that did not. Our results show that the post-HFA debt maturity structure increases only for the sample that did not adopt a poison pill. This evidence again reinforces the hypothesis that the observed debt maturity changes are influenced by HFA and may not be voluntarily initiated by the incumbent firm managers of the target firms irrespective of hedge fund interventions.

---------- Table 9 ----------

6.2 Stock Selection or Intervention?

In general, 13D filings announce two related events about target firms: (1) acquisition of substantial shareholding (5% or more) by a shareholder (or shareholder group) and (2) intention to engage in activism by a shareholder (or shareholder group). Since the acquisition of share ownership and the announcement of activism occur simultaneously, it is difficult to ascertain whether changes observed in target firms post 13D filings are due to HFA or it represents the evidence of hedge fund managers' superior stock selection skills in anticipation of a positive change in target firms. To address this identification problem, we use a sample of 13D filings by existing large passive shareholders of the target firms. In the US, beneficial shareholders who own more than 5% (but less than 20%) of a firm for pure 'Investment Purposes' are required to file only a Schedule 13G form with the regulator. A sample of 13D filings from existing 13G investors may provide a clearer identification of activist interventions, as there are no substantial ownership changes associated with these events.

The sample of activism campaigns where hedge funds switch from 13G to 13D filings allows us to investigate activism campaigns with cleaner intervention intentions. Panel B of Table 9 reports estimation results of the following regression model:

$$DebtMaturity_{it} = \alpha_i + \alpha_t + \beta_1.(Post_{it}) + \beta_2.(13G - to - 13D) \times (Post_{it}) + \gamma.Control_{it} + \varepsilon_{it} \qquad (5)$$

In this model, *13G-to-13D* is a dummy variable that indicates campaigns with 13G to 13D switches. We expect the coefficient β_2 to be positive and significant, providing evidence that hedge fund interventions increase debt maturity in target firms. The results show that β_1 and β_2 coefficients are positive and significant at 5% and 10% levels of significance. However, the magnitude of β_2 (0.077) is more than three times the magnitude of β_1 (0.024). In other words, target firms that experience activism from the previous 13G investors increase their debt

maturity 7% more than other target firms in the three years following HFA. This evidence provides greater clarity that HFA does affect the debt maturity structure of target firms.

6.3 Debt Maturity and Hedge Fund Self-Interest

As an alternative to the *Governance Substitution Hypothesis*, we test the *Self Interest Hypothesis*. We explore the possibility that hedge funds may launch activist campaigns to fulfil their opportunistic, short-term profit motive or to serve their self-interest. In such cases, activist hedge funds will not be credible monitors; hence, in such campaigns, if we observe post-HFA debt maturity increase, then that evidence might contradict the *Governance Substitution Hypothesis and support the Self Interest Hypothesis*. To test this, we create subsamples of the target firms based on the campaign characteristics that could potentially indicate private benefit extraction by activist hedge fund managers. Coffee (2017) suggests that privately negotiated settlements between incumbent managers and the activist hedge funds are evidence of private rent-seeking.

One of the most common provisions of settlement agreements is "the standstill" provision, which often limits activist hedge funds from acquiring additional shares of the target firms and prohibits them from engaging in future corporate governance related interventions (Bebchuk, Brav, Jiang, and Keusch, 2020). A report[7] by Sullivan and Cornwell LLP reveals that in 2019 more than 95% of standstill provisions prohibited activists from "soliciting proxies or consents" and 93% prohibited them from "forming a group or a voting trust or entering into a voting agreement" against the target firms. Even though Bebchuk, Brav, Jiang, and Keusch (2020) find no evidence that settlements enable rent extraction by the activist hedge funds, the

[7] Review and Analysis of 2020 U.S. Shareholder Activism and Activist Settlement Agreements - by Sullivan and Cornwell LLP, (https://www.sullcrom.com/files/upload/sc-publication-review-analysis-2020-US-shareholder-activism.pdf - accessed on 23rd April 2021)

standstill provisions, at the very least, significantly diminish activist hedge funds' monitoring capabilities[8].

The "Activist Insight", – a provider of investor activism and corporate governance data, reports[9] that in 2018, on average US target firms paid $431,831 to the activist hedge funds as reimbursement of activism related expenses. Larger payments such as art auction house Sotheby's $10 million reimbursements to Third Point LLC[10] raised questions related to activist investors' self-dealing through the settlement agreement (Coffee, 2017). Coffee, Jackson, Mitts, and Bishop (2019) provide evidence of insider information leakage to activist hedge funds following the appointment of activist nominated directors. Hence, we create subsamples of activism campaigns: (1) that were privately settled, (2) where hedge funds seek reimbursement, (3) where hedge funds gain corporate board representation. As these samples potentially represent less credible activist monitoring; hence, post-HFA, a significant increase in debt maturity of target firms in these campaigns might contradict the *Governance Substitution Hypothesis*.

Anecdotal evidence also suggests that activist hedge funds may prefer debt-reliant share buybacks[11,12]. Hence, post-HFA share repurchase programs could also motivate target firms to raise long-term public debt. On the other hand, Autore, Clarke, and Liu (2019) find that activist investors' influence improves firms open market share repurchase decisions. Therefore, we test

[8] Settlement Agreements with Activist Investors—the Latest Entrenchment Device? Posted by Derek D. Bork, Thompson Hine LLP, on Thursday, July 7, 2016 (https://corpgov.law.harvard.edu/2016/07/07/settlement-agreements-with-activist-investors-the-latest-entrenchment-device/ - accessed on 23rd April 2021)
[9] In Depth: Giving back (https://www.activistinsight.com/research/Giving_Back.pdf - accessed on 23rd April 2021)
[10] Sotheby's to Reimburse Loeb $10 Million (https://dealbook.nytimes.com/2014/05/07/sothebys-to-reimburse-loeb-10-million/ - - accessed on 23rd April 2021)
[11] https://carlicahn.com/our_letter_to_tim_cook/ (accessed on 3rd May 2019)
[12] As Activism Rises, U.S. Firms Spend More on Buybacks Than Factories (https://www.wsj.com/articles/companies-send-more-cash-back-to-shareholders-1432693805 - - accessed on 31st May 2020)

the significance of debt maturity increase in campaigns where target firms carry out share repurchases in the years following HFA.

Table 10 reports the results of these alternative analyses. Our findings show that the debt maturity of target firms does not increase significantly for activism campaigns that are – 1) privately settled, 2) ask for reimbursement, and 3) where board representation is awarded to activist hedge funds. In other words, we do not find a significant change in the debt maturity of target firms in campaigns with concerns over private benefit extraction by activist hedge funds. This absence of contradictory evidence further supports our *Governance Substitution Hypothesis*.

---------- Table 10----------

Our subsample analysis for campaigns with and without post-HFA share repurchase programs, shows that debt maturity of target firms increases significantly in both the subsamples. This may suggest that, in some target firms, the proportion of long-term debt increases to fund share repurchase programs. However, our results also indicate that post-HFA, the debt maturity structure of target firms significantly increases irrespective of share repurchases by target firms. Hence, our analysis reported in Table 10 do not support the *Self Interest Hypothesis*.

Bratton (2007) suggested that the payout demands of activist hedge funds often force targets to take on long-term debt, even though the firms may not have an appetite for additional debt. To test if HFA influences targets to take on more long-term debt irrespective of their borrowing capacity, we create subsamples of the target firms based on firm characteristics known to influence firm debt maturity choices. We categorise target firms in low, medium, and high groups based on terciles of abnormal earnings, leverage, the tangibility of assets, CAPEX, R&D, and cash holdings in the year before HFA. Higher abnormal earnings, lower leverage, the higher tangibility of assets, higher CAPEX, lower R&D, and lower cash holdings reflect

better credit risk profile, lower agency costs of debt, and greater borrowing capacity. Such firms characteristics are generally associated with long-term debt maturity (Custodio, Ferreira, and Laureano, 2013). If activist hedge funds influence target firms to increase debt to fund shareholder payouts, then we do not expect to find a significant relationship between these firm characteristics and post-HFA debt maturity, as hedge funds' short-term profit motive might distort these theoretical relationships post-HFA.

We carry out subsample analysis on the target firms that belong to low and high categories of these variables. Table 11 reports the estimated results of this analysis.

----------Table 11----------

Our results show that the post-activism long-term component of debt increases only for target firms that had relatively higher levels of abnormal earnings, lower leverage, higher levels of tangible assets, higher investment in CAPEX, lower R&D, and lower levels of cash holdings before HFA. This evidence suggests that post-HFA, target firms with relatively lower agency costs of debt and relatively higher borrowing capacity increase their debt maturity structure. However, target firms with lower borrowing capacity and higher agency costs of debt show no significant debt maturity increase. Hence, these tests provide no evidence that activist hedge funds' self-interest unduly influences target firms to raise long-term debt post-HFA.

7. Conclusion

In this study, we analyse the relationship between HFA and the debt maturity structure of target firms. We find that the proportion of debt maturing in more than three years increases significantly in target firms after HFA. This finding is robust to various alternative tests. Target firms with lower agency costs of debt and higher borrowing capacity increase their debt maturity post-activism. Moreover, hedge funds' private benefit extraction (i.e., debt-fuelled

share repurchases, privately negotiated settlements, demand for board seats, expense and fee reimbursements) does not significantly influence target firms' debt maturity structure. Following hedge fund interventions, the debt maturity changes are more prominent in target firms that implement changes in their corporate governance practices. Evidence from new debt issues shows that post-HFA target firms prefer bonds to loans, and this changed preference explains, post-HFA increases in target firms' debt maturity profile. Overall, our findings support the *Governance Substitution i.e.,* decreased demand for short-term creditor monitoring (Bharath and Hertzel, 2019), as a possible explanation for the post-HFA debt maturity increase in target firms.

Our study contributes to the scarce literature (Brav, Jiang, and Kim, 2015; Brav, Wei, Song, and Xuan, 2018) on the economic channels through which HFA affects corporate policies. Our findings also link the growing literature on governance substitution (Boubaker, Saffar, and Sassi, 2018; Bharath and Hertzel, 2019) to the literature on HFA. Finally, this study highlights the governance role of activist hedge funds and their influence on the target firms' corporate debt choices and financing decisions.

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Appendix

Following are the definitions of the variables used in this study. The Compustat variable codes are mentioned in **bold** font within parenthesis where applicable.

Total Debt: Debt in current liabilities (**DLC**) plus long-term debt (**DLTT**)

Debt Maturity: Long-term debt (**DLTT**) minus debt maturing in 2 and 3 years (**DD2+DD3**) to total debt

Firm Size: Log of Market Capitalization (**CSHO**) times stock price at fiscal year-end (**PRCC_F**)

Market value of equity (MV): Number of shares outstanding (**CSHO**) times stock price at fiscal year-end (**PRCC_F**)

Firm Assets: Total assets of a firm (**AT**)

Market-to-book ratio (MB): Market value of assets (**AT+CSHO×PRCC_F-CEQ**) to total assets (**AT**)

Sales Growth: Growth rate of sales relative to previous fiscal year

Abnormal Earnings: Difference between income before extraordinary items, adjusted for common or ordinary stock (capital) equivalents (**IBADJ**) for time *t* and *t−1* over market value of equity used to calculate earnings per share (**PRCC_F×CSHPRI**)

Asset Maturity: Property, plant and equipment (**PPEGT**) over depreciation and amortization (**DP**) times the proportion of property, plant, and equipment in total assets (**PPEGT/AT**), plus current assets (**ACT**) over cost of goods sold (**COGS**) times the proportion of current assets in total assets (**ACT/AT**)

Assets Volatility: Standard deviation of stock returns during the fiscal year times the market value of equity divided by market value of assets

Leverage: Total debt to total assets (**AT**)

R&D: Research and development expenditures (**XRD**) to total assets (**AT**)

CAPEX: Capital expenditures (**CAPX**) to total assets (**AT**)

Tangibility: Property, plant and equipment (**PPENT**) to total assets (**AT**)

Institutional Ownership: Number of shares held by institutions divided by the number of shares outstanding. Source: Thomson CDA/Spectrum 13F Holdings.

Return On Assets (ROA): Earnings before interest, taxes, depreciation, and amortization (**EBITDA**) to total assets (**AT**)

Cash Holdings: Cash and short-term investments (**CHE**) to total assets (**AT**)

Log (Age): Number of years between data availability and recorded year

Recession dummy: Recession years' dummy by NBER

Term Spread: Difference between the yield on 10-year government bonds and the yield on 1-year government bonds. Source: Federal Reserve.

Figure 1: Debt Maturity: Before and After Three Years for Target and Control Firms

This figure displays the median value of the proportion of debt maturing in more than 3 years in target and control firms, from 3 years before to 3 years after HFA, over the sample period 1997 to 2017. Matched control firms are referred from the same two-digit SIC industry codes and with the closest propensity score. Propensity scores are estimated using a logistic regression model considering some of the main determinants of activism, like *firm size, MB, ROA* measured at time *t-1*, *leverage* measured at time *t-1*, and change in *ROA* from *t-3* to *t-1* (Brav, Wei, Song, and Xuan, 2018). The year zero (0) represents the year of HFA.

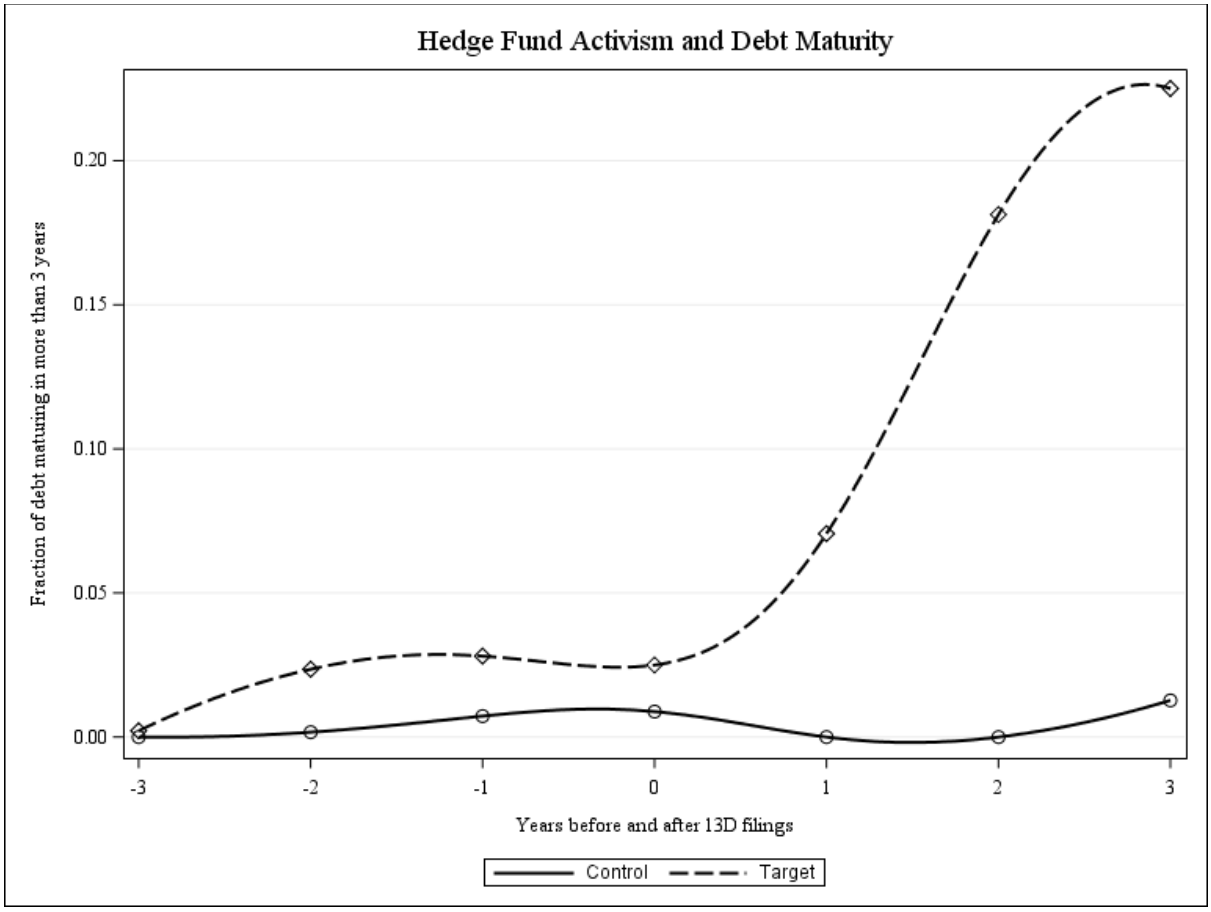

Figure 2: Average Value of Loans and Bonds Issued Around Hedge Fund Activism

This figure compares average value (in US million dollars) of loans and bonds issued by firms in target and the control sample from 3 years before to 3 years after HFA. The new issue data is collected from Thomson Reuters' Eikon database, over the sample period 1997 to 2017. We use debt issuers' six-digit CUSIP code to identify loans and bonds issued by target firms. The average loan/bond size refers to the average value of Eikon database variable - Package Amount / Principal Amount (All Markets) in US million dollars for the new loans/bonds issued by target firms. Matched control firms are referred from the same two-digit SIC industry codes and with the closest propensity score. Propensity scores are estimated using a logistic regression model considering some of the main determinants of activism, i.e. - *firm size, MB, ROA, leverage* measured at time *t-1*, and change in *ROA* from *t-3* to *t-1* (Brav, Wei, Song, and Xuan, 2018). The year (0) represents the year of HFA.

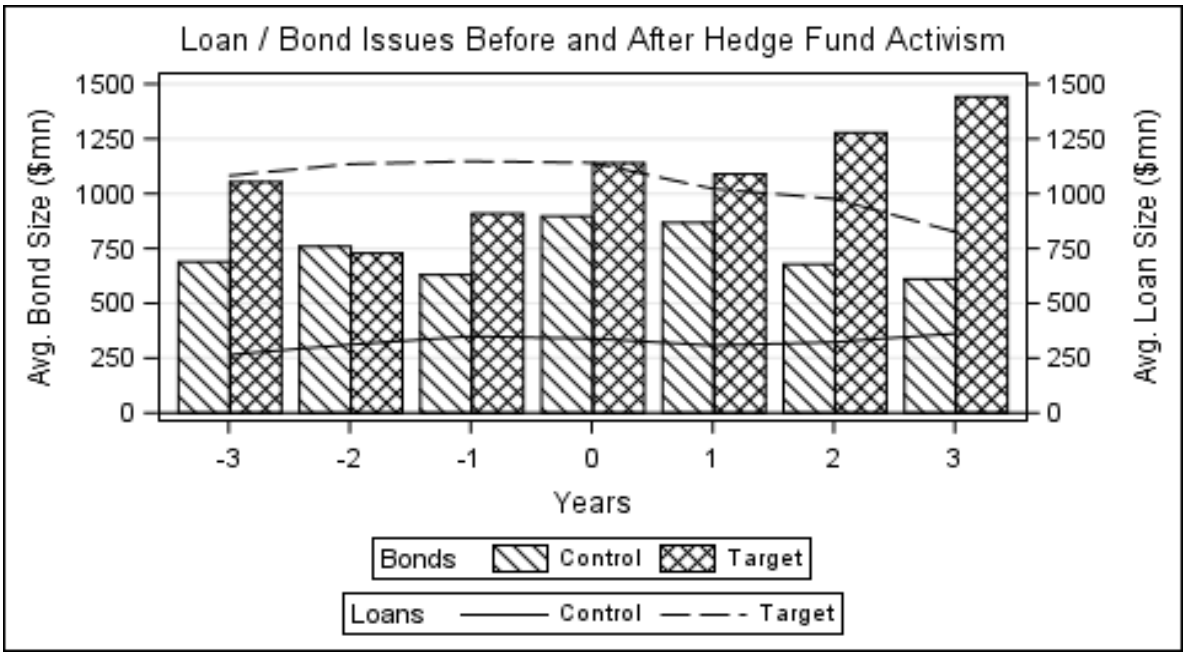

Table 1: Hedge Fund Activism & Objectives of Activism Over the Years

This table provides the distribution of hedge fund activism events and the stated objectives of the activism campaigns across the sample period, 2000 to 2017. We identify hedge fund activism events based on 13D filings and the SharkRepellent database. The SEC requires activist investors to file a Schedule 13D form within 10 days after crossing a 5% ownership threshold, along with their activist agendas. Schedule 13D requires filers to disclose their identity (e.g., individuals, corporations, mutual funds, or hedge funds etc.), percentage stake held and a statement of purpose. We manually categorise the stated objectives of the activist hedge funds into five non-mutually exclusive groups, i.e., value maximization, corporate governance reforms, changes in capital structure, changes in business strategies and sale of target firms. Various stated objectives of hedge funds and the number of events are provided in separate columns. Activism events pertaining to bankruptcy, business reorganizations, merger risk-arbitrage opportunities and financial firms are excluded from the sample because of their unique capital structure requirements following Brav, Jiang, Partnoy, and Thomas (2008).

Year	Activism Events	Sample %	Value Maximize	Sample %	Corporate Governance	Sample %	Capital Structure	Sample %	Business Strategies	Sample %	Sale of Target	Sample %
2000	17	1.35	8	0.63	11	0.87	4	0.32	8	0.63	10	0.79
2001	22	1.74	13	1.03	11	0.87	5	0.40	6	0.48	6	0.48
2002	31	2.45	11	0.87	21	1.66	7	0.55	8	0.63	11	0.87
2003	24	1.9	7	0.55	17	1.35	5	0.40	7	0.55	10	0.79
2004	37	2.93	18	1.43	21	1.66	10	0.79	16	1.27	12	0.95
2005	69	5.46	31	2.45	44	3.48	20	1.58	26	2.06	24	1.90
2006	128	10.13	59	4.67	82	6.49	34	2.69	73	5.78	46	3.64
2007	137	10.85	68	5.38	77	6.10	41	3.25	85	6.73	56	4.43
2008	108	8.55	53	4.20	64	5.07	26	2.06	68	5.38	47	3.72
2009	42	3.33	14	1.11	28	2.22	14	1.11	22	1.74	9	0.71
2010	61	4.83	23	1.82	39	3.09	14	1.11	27	2.14	16	1.27
2011	64	5.07	23	1.82	42	3.33	17	1.35	31	2.45	22	1.74
2012	76	6.02	27	2.14	58	4.59	12	0.95	44	3.48	30	2.38
2013	84	6.65	23	1.82	64	5.07	32	2.53	45	3.56	19	1.50
2014	110	8.71	49	3.88	72	5.70	34	2.69	68	5.38	25	1.98
2015	106	8.39	31	2.45	81	6.41	35	2.77	70	5.54	22	1.74
2016	80	6.33	46	3.64	58	4.59	22	1.74	53	4.20	11	0.87
2017	67	5.3	39	3.09	41	3.25	9	0.71	43	3.40	17	1.35
Total	1,263	100	543	42.99	831	65.79	341	27.00	700	55.42	393	31.12

Table 2: Summary Statistics for Target and Matched Control Firms

This table provides summary statistics of firm characteristic for the target as well as a matched control group of firms one year prior to HFA (pseudo-events for matched controls). We identify hedge fund activism events based on 13D filings and from the SharkRepellent database. Matched control firms are referred from the same two-digit SIC industry codes and with the closest propensity score. Propensity scores are estimated using a logistic regression model considering some of the main determinants of activism, i.e. - *firm size*, *MB*, *ROA*, *leverage* measured at time *t-1*, and change in *ROA* from *t-3* to *t-1* (Brav, Wei, Song, and Xuan, 2018). For each variable, we report the mean, standard deviation (S.D.), 25th (p25), 50th (p50), and 75th (p75) percentiles. Differences between matched control and target firms are reported by computing both t-statistics and Wilcoxon test statistics. For a variable to be significant, both test statistics should be significant at the 10% level, and at least one of them should be significant at the 5% level (Brav, Jiang, Partnoy, and Thomas, 2008). $USM is US million dollars. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively. All the variable definitions are provided in the Appendix.

	Target Firms (830)					**Control Firms (830)**					**Difference (Control-Target)**		
	Mean	**S.D.**	**p25**	**p50**	**p75**	**Mean**	**S.D.**	**p25**	**p50**	**p75**	**Difference**	**t-Stat.**	**Wilcoxon**
Firm Assets ($USM)	4102.51	15000.19	108.91	379.16	1716.36	5337.81	17519.84	67.56	342.06	2333.15	1235.30	1.54	1.31
Firm Size	5.94	2.05	4.55	5.72	7.32	5.90	2.54	4.07	5.89	7.79	-0.04	-0.35	-0.11
ROA	0.03	0.41	0.02	0.09	0.14	0.03	0.68	0.04	0.10	0.16	0.00	-0.16	-2.46
R&D	0.09	0.14	0.01	0.04	0.12	0.09	0.15	0.00	0.03	0.11	0.00	-0.20	-1.34
Leverage	0.22	0.26	0.00	0.16	0.35	0.22	0.32	0.02	0.17	0.34	0.00	0.10	0.62
MB Ratio	2.05	4.97	1.10	1.42	1.97	2.29	5.99	1.13	1.52	2.29	0.25	0.91	3.04
Sales Growth	0.14	0.73	-0.04	0.04	0.17	0.12	0.59	-0.05	0.06	0.19	-0.02	-0.59	-1.09
Debt Maturity	0.35	0.40	0.00	0.03	0.76	0.30	0.38	0.00	0.01	0.66	-0.05	-2.42	-1.56
Total Debt ($USM)	1133.50	3838.71	0.18	41.72	433.07	1300.70	4231.68	0.88	34.13	475.31	167.20	0.84	0.28
CAPEX	0.05	0.06	0.01	0.03	0.06	0.05	0.06	0.01	0.03	0.06	0.00	-1.02	-0.92
Abnormal Earnings	0.02	0.81	-0.05	0.00	0.03	-0.03	0.63	-0.04	0.00	0.02	-0.05	-1.41	-0.88
Cash Holdings	0.22	0.23	0.04	0.14	0.34	0.20	0.21	0.05	0.12	0.27	-0.03	-2.34	-1.58
Asset Maturity	9.06	12.45	2.44	4.89	11.20	10.26	15.35	2.29	5.90	12.75	1.20	1.71	1.35

Table 3: Panel Regression - Debt Maturity and Hedge Fund Activism

This table provides estimated coefficients of the panel regression that explore the impact of hedge fund activism on debt maturity of the firms. The sample includes the target firms and the matched control firms, and the dependent variable is $DebtMaturity_{it}$, i.e., debt maturing in more than 3 years. We use the following regression specification:

$$DebtMaturity_{it} = \alpha_i + \alpha_t + \beta_1.(Target_i) \times (Post_{it}) + \beta_2.(Post_{it}) + \gamma.Control_{it} + \varepsilon_{it}$$

$Target_i$ is a dummy variable equal to 1 for target firm i and $Post_{it}$ is a dummy variable equal to 1 for the three (3) years after HFA. These post-event years are taken as pseudo-event years for control firms. $Control_{it}$ is a vector of control variables. The *t-statistics* (standard errors clustered at the firm level) – are displayed in parentheses. Column (1) reports standard regression results by including only firm size and age as control variables, column (2) reports regression results by including all our control variables, column (3) includes a *trend* component along with the other covariates, column (4) includes industry and year dummies in the regression framework, and column (5) includes *Herfindahl-Hirschman Index (HHI)* along with the other covariates. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively. All the variable definitions are provided in the Appendix.

Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
Target$_i$				0.028***	
				(2.65)	
Post$_{it}$	-0.011	-0.011	-0.011	-0.017	-0.011
	(-1.12)	(-1.05)	(-1.05)	(-1.55)	(-1.05)
*Target$_i$ * Post$_{it}$*	0.041***	0.038**	0.038**	0.041**	0.038**
	(2.92)	(2.45)	(2.46)	(2.59)	(2.46)
Firm Size	0.035***	0.049***	0.049***	0.086***	0.049***
	(11.05)	(4.91)	(4.91)	(8.99)	(4.91)
Firm Size^2		0.0003	0.0003	-0.003***	0.0004
		(0.41)	(0.42)	(-3.70)	(0.41)
Leverage		0.374***	0.373***	0.460***	0.374***
		(7.20)	(7.19)	(9.68)	(7.20)
MB		-0.010***	-0.010***	-0.013***	-0.010***
		(-4.52)	(-4.52)	(-4.85)	(-4.52)
Abnormal Earnings		0.011***	0.011***	0.014***	0.011***
		(2.77)	(2.79)	(3.16)	(2.77)
Asset Maturity		-0.001*	-0.001*	-0.001***	-0.001*
		(-1.66)	(-1.66)	(-3.46)	(-1.66)
Asset Volatility		-0.092*	-0.091*	-0.242***	-0.092*
		(-1.71)	(-1.70)	(-3.66)	(-1.71)
Tangibility		0.082*	0.083*	0.175***	0.082*
		(1.88)	(1.89)	(4.69)	(1.88)
Log(Age)	0.004	-0.027**	-0.027**	0.025***	-0.027**
	(0.45)	(-2.36)	(-2.35)	(3.72)	(-2.36)
Term Spread		20.434*	61.673	-14.618	20.567*
		(1.79)	(0.66)	(-1.64)	(1.80)
Recession Dummy		-0.750**	-1.468	0.445	-0.754**
		(-2.05)	(-0.89)	(1.42)	(-2.06)
Trend			0.041		
			(0.45)		
HHI					0.011
					(0.29)
Observations	28,219	22,019	22,019	22,019	22,019
Firm FE	Yes	Yes	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	No	No	No	Yes	No
R^2	0.12	0.25	0.17	0.26	0.25

Table 4: Debt Maturity, Hedge Fund Activism and Stated Objectives

This table documents the panel regressions investigating the influence of hedge fund activism on debt maturity (i.e., proportion debt maturing in more than 3 years) across various stated objectives of activism. We identify hedge fund activism events from the SharkRepellent database. Schedule 13D requires filers to disclose their identity (e.g., individuals, corporations, mutual funds, or hedge funds etc.), percentage stake held and a statement of purpose. We manually categorise the stated objectives of the activist hedge funds into five non-mutually exclusive groups, i.e., value maximization, corporate governance reforms, changes in capital structure, changes in business strategies and sale of target firms. This analysis uses the subsamples of target firms based on various stated objectives of hedge funds while filing Schedule 13D with the regulator. The variable definitions are provided in the Appendix. $Post_{it}$ is a dummy variable which is equal to 1 for the three (3) years following HFA. The *t-statistics* (standard errors clustered at the firm level) – are displayed in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

Variables	**Corporate Governance**	**Capital Structure**	**Value Maximization**	**Business Strategies**	**Sale of Target**
$Post_{it}$	0.0266**	0.0483**	0.0389**	0.0230	0.0195
	(2.01)	(2.19)	(2.23)	(1.45)	(0.82)
Controls	Yes	Yes	Yes	Yes	Yes
Observations	8,065	3,155	4,505	6,550	3,336
No. of Firms	561	230	343	471	252
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
R^2	0.28	0.26	0.29	0.33	0.27

Table 5: Hedge Fund Activism, Debt Maturity, and 'Governance' Response

This table report panel regressions that investigate "governance" as a channel through which hedge fund activism may influence the debt maturity of target firms. This analysis uses two subsamples of campaigns with "corporate governance" as a stated objective; the subsamples are: 1) Target firms that provide governance response, 2) target firms that do not provide any governance response to the activists' demands. The governance response refers to reforms undertaken with respect to corporate governance practices by target firms after hedge fund activism. In the subsample of target firms with identifiable governance response, about 70% of target firms respond by making changes to board size; about 9% remove incumbent CEOs, change the compensation structure of CEOs, or separate the role of CEO and board chairman; 12% make changes in shareholder rights, and 19% make shareholder-friendly (enhance shareholder rights) changes in firm bylaws and charters. $Post_{it}$ is a dummy variable which is equal to 1 for the years following HFA. The *t-statistics* (standard errors clustered at the firm level) – are displayed in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

Variables	**Governance Response**	**Non-Governance Response**
$Post_{it}$	0.075**	0.011
	(2.59)	(0.47)
Controls	Yes	Yes
Observations	2,194	2,134
Firm FE	Yes	Yes
Year FE	Yes	Yes
R^2	0.37	0.32

Table 6: New Loans and Hedge Fund Activism – Issues Size, Maturity, and Spread

This table documents panel regression models that examine new *Loan Maturity* (in years), the natural logarithm of loan *Issue Size*, and the natural logarithm of *Loan Spread* pertaining to loans raised by target firms between 5 years before to 5 years after HFA. We collect new loans issuance information from Thomson Reuters' 'Refinitiv Eikon' database. We use debt issuers' six-digit CUSIP code to identify loans issued by target firms over the period 1995 to 2017. The *loan maturity* refers to loan maturity period at the time of issue expressed in numbers of years, loan *issue size* variable refers to Eikon database variable - Package Amount in US million dollars, *loan spread* is the All In Drawn Loan Spread expressed in terms of basis points above LIBOR. *Post (3 years), Post (5 years)* are dummy variables indicating 3- and 5-years period following HFA. Description of all variables is provided in the Appendix. The *t-statistics* (standard errors clustered at the firm level) – are displayed in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

Variables	Issue Size	Issue Size	Loan Maturity	Loan Maturity	Loan Spread	Loan Spread
Post (3 years)	-0.184**		-0.029		-0.004	
	(-2.19)		(-0.26)		(-0.05)	
Post (5 years)		-0.207***		-0.032		0.042
		(-2.96)		(-0.3)		(0.55)
Firm Size	0.500***	0.488***	-0.059	-0.058	-0.167***	-0.126***
	(8.34)	(11.15)	(-1.32)	(-1.59)	(-6.4)	(-4.97)
MB	-0.277***	-0.338***	-0.035	-0.033	-0.136***	-0.158***
	(-3.7)	(-5.05)	(-0.43)	(-0.55)	(-3.32)	(-3.31)
Leverage	1.234***	1.359***	0.629**	0.806***	0.639***	0.714***
	(6.21)	(7.53)	(2.32)	(3.36)	(3.28)	(3.94)
ROA	-0.353	-0.559	1.544**	1.332***	0.224	0.534
	(-0.55)	(-1.14)	(2.4)	(3.41)	(0.87)	(1.09)
Tangibility	-0.343	-0.173	-0.661**	-0.550**	0.412*	0.233
	(-1.64)	(-0.85)	(-2.42)	(-2.33)	(1.76)	(1.18)
Cash Holdings	-1.494***	-1.181***	-1.433**	-0.970*	0.883**	0.621
	(-3.29)	(-3)	(-2.11)	(-1.82)	(2.14)	(1.64)
Log(Age)	0.178**	0.148**	-0.135	-0.085	-0.046	-0.081
	(2.17)	(2.2)	(-1.61)	(-1.18)	(-0.86)	(-1.63)
Default	0.229	0.212	-0.475	-0.532	-0.407	-0.283
	(0.45)	(0.48)	(-0.68)	(-0.87)	(-1.33)	(-1.01)
Term Spread	-0.231	-0.182	0.002	0.041	-0.039	-0.025
	(-0.79)	(-0.67)	(0.01)	(0.11)	(-0.27)	(-0.18)
Loan Maturity	0.077**	0.079***			0.044**	0.033*
	(2.44)	(2.95)			(2.07)	(1.66)
Loan Spread	0.015	0.007				
	(0.36)	(0.21)				

Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,053	1,474	1,159	1,632	1,053	1,474
R^2	0.62	0.60	0.16	0.16	0.30	0.26

Table 7: Hedge Fund Activism and Target Firms' Preference for Bonds

This table presents estimates from linear regressions models (Models 1 & 2) and Probit models (Models 3 & 4) to analyse target firm dependence on long-term public debt compared to loans in the years following HFA. We consider two model specifications for this analysis:

$$Bond_{it} = \alpha + \beta_1(Target_i) + \beta_2(Post_{it}) + \beta_3(Target_i) \times (Post_{it}) + \gamma.Control_{it} + \varepsilon_{it}$$

$$Bond_{it} = \alpha + \beta_1(Target_i) + \sum_{0}^{+3} \lambda_k\, d[t+k]_{it} + \sum_{0}^{+3} \gamma_k \{d[t+k]_{it} \times (Target_i)\} + \gamma.Control_{it} + \varepsilon_{it}$$

In linear regression models, the dependent variable is $Bond\_frac_{it}$ i.e. the fraction of debt raised through bonds in year *t* by firm *i*. In the probit models, the dependent variable is $Bond\_pref_{it}$ which takes the value 1 when the fraction of debt raised through bond issues is greater than 50% and zero otherwise. $Target_i$ is a dummy variable equal to 1 for target firm *i* and $Control_{it}$ is a vector of control variables. $Post_{it}$ is the dummy variable to identify the post-activism period up to 3 years – post-HFA. Dummy variables $d[t+k]_{it}$, k = 0 to 3, identify the year of HFA and three post-activism years individually. These event/post-event years are taken as pseudo-event/post-event years for control firms. All variable definitions are provided in the Appendix. The *t-statistics* (standard errors clustered at the firm level) – are displayed in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

	Bond_frac$_{it}$		***Bond_pref$_{it}$***	
Variables	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Target$_i$	-0.37×10-3	-0.367×10-3	-0.096	-0.096
	(-0.04)	(-0.04)	(-1.26)	(-1.5)
Post$_{it}$	-0.011		-0.107	
	(-1.29)		(-1.62)	
*Target$_i$ * Post$_{it}$*	0.024**		0.205**	
	(2.17)		(2.19)	
d[t]		-0.006		-0.050
		(-0.49)		(-0.45)
d[t+1]		-0.021*		-0.197
		(-1.71)		(-1.68)
d[t+2]		-0.002		-0.045
		(-0.1)		(-0.37)
d[t+3]		-0.014		-0.155
		(-0.95)		(-1.22)
Target$_i$ d[t]*		0.016		0.115
		(0.94)		(0.72)

Target$_i$ d[t+1]*		0.033*		0.291*
		(1.92)		(1.74)
Target$_i$ d[t+2]*		0.022		0.183
		(1.15)		(1.08)
Target$_i$ d[t+3]*		0.025		0.27
		(1.22)		(1.54)
Firm Size	0.059***	-0.076***	0.406***	0.406***
	(15.61)	(-4.33)	(18.38)	(25.17)
MB	0.142×10-3	0.138×10-3	-0.043	-0.043*
	(0.09)	(0.09)	(-1.38)	(-1.81)
Leverage	0.067***	0.066***	0.988***	0.987***
	(4.71)	(4.71)	(8.74)	(10.69)
ROA	-0.044***	-0.044***	0.7317***	0.7313***
	(-3.78)	(-3.76)	(2.82)	(2.84)
Tangibility	-0.221×10-2	-0.235×10-2	0.026	0.026
	(-0.1)	(-0.1)	(0.17)	(0.23)
Default	-0.019	-0.018	-3.194**	-3.216**
	(-0.38)	(-0.36)	(-2.12)	(-2.15)
Institutional Ownership	-0.076***	0.059***	0.101	0.101
	(-4.34)	(15.61)	(0.82)	(1.11)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Hypothesis Test: $H: \gamma_0 + \gamma_1 + \gamma_2 + \gamma_3 = 0$				
Coefficient Sum		0.096**		0.859**
t-statistics		2.17		2.18
Observations	8,150	8,150	8,150	8,150
R^2 / Pseudo R^2	0.19	0.19	0.35	0.35

Table 8: Hedge Fund Activism, Preference for Bonds and Debt Maturity in Target Firms

This table examines "governance substitution" as a channel through which hedge fund activism may influence the debt maturity of target firms. We report regression models similar to Table 3 using the sample of target and control firms with new loan and bond issuance data. $Target_i$ is a dummy variable equal to 1 for target firm *i* and $Post_{it}$ is the dummy variable to identify the post-activism period up to 3 years – post-HFA. These post-event years are taken as pseudo-event years for control firms. In these models, we augment our original difference-in-differences specification with predicted values of target firms' preference for bonds over loans (i.e., $\widehat{Bond\_frac}_{it}$ and $\widehat{Bond\_pref}_{it}$). We estimate the predicted values of fraction of debt raised through bond issues, i.e. $\widehat{Bond\_frac}_{it}$ using Model 1 reported in Table 7. The $\widehat{Bond\_pref}_{it}$ is determined based on $\widehat{Bond\_frac}_{it}$; the dummy variable $\widehat{Bond\_pref}_{it}$ indicates above-average preference for bonds over loans while raising corporate debt, it takes the value 1 for above average $\widehat{Bond\_frac}_{it}$ values, and 0 otherwise. The *t-statistics* (standard errors clustered at the firm level) – are displayed in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

Variables	Model 1	Model 2	Model 3
$Target_i$	0.027*	0.002	0.004
	(1.79)	(0.12)	(0.26)
$Post_{it}$	-0.012	-0.005	-0.010
	(-0.91)	(-0.38)	(-0.72)
$Target_i * Post_{it}$	0.035**	0.007	0.023
	(2.09)	0.38	(1.31)
$\widehat{Bondfrac}_{it}$		0.969***	
		(3.44)	
$\widehat{Bondpref}_{it}$			0.113***
			(4.74)
Controls	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	7,454	7,454	7,454
R^2	0.30	0.30	0.30

Table 9: Tests for Causality

This table presents evidence of a possible causal relationship between hedge fund activism (HFA) and the debt maturity of target firms through the tests of alternative explanations. In Panel A, we investigate if, post-HFA, changes to target firm debt maturity is voluntarily initiated by target firm managers. Panel A considers the split-sample analyses for target firms with hostile, moderate and no resistance to activism initiatives following Boyson and Pichler (2019). Panel A also provides subsample analysis based on adoption vs. non-adoption of poison pills by target firms after HFA. Adoption of the poison pill is considered as a hostile response to HFA. As most of the 13D filings correspond to a public announcement of both - activism and acquisition of significant ownership, hence Panel B considers campaigns where hedge funds switch from Schedule 13G to 13D filings. The conversions from 13G to 13D filings indicate existing passive shareholders becoming activist investors of a target firm. $Post_{it}$ is a dummy variable which is equal to 1 for the three (3) years following HFA, dummy variable *13G-to-13D* indicates target activist campaigns where hedge funds switched from schedule 13G to 13D filings. The *t-statistics* (standard errors clustered at the firm level) – are displayed in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

Panel A: Target Firms' Resistance to Activism

Variables	**Resistance**			**Poison Pills**	
	Hostile	**Moderate**	**No Resistance**	**Adoption**	**Non-Adoption**
$Post_{it}$	0.00572	-0.0164	0.0560***	0.0360	0.0314***
	(0.17)	(-0.41)	(2.76)	(0.82)	(2.66)
Controls	Yes	Yes	Yes	Yes	Yes
Observations	1,025	750	3,887	602	10,900
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
R^2	0.46	0.34	0.34	0.52	0.30

	Panel B: 13G to 13D switch
Variables	
$Post_{it}$	0.024**
	(2.09)
*13G-to-13D*Post*$_{it}$	0.077*
	(1.71)
Controls	Yes
Observations	11,502
Firm FE	Yes
Year FE	Yes
R^2	0.31

Table 10: Hedge Fund Activism, Debt Maturity and Hedge Funds Private Benefits

This table report panel regressions that investigate "private benefits" as a channel through which hedge fund activism (HFA) may influence the debt maturity of target firms. Following Coffee (2017), we create subsamples of the target firms based on the campaign characteristics that could potentially indicate private benefit extraction by activist hedge fund managers. The subsamples are created based on activism campaigns: (1) that were privately settled, (2) where hedge funds seek reimbursement of their campaign expenses, (3) where hedge funds gain corporate board representation, and (4) where target firms carry out share repurchases within 3 years following HFA. Target firms' debt maturity (i.e., proportion debt maturing in more than 3 years) is the dependent variable in models reported in this table. $Post_{it}$ is a dummy variable, which is equal to 1 for the three (3) years following HFA. The *t-statistics* (standard errors clustered at the firm level) – are displayed in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

Variables	**(1)**		**(2)**		**(3)**		**(4)**	
	Settled Campaigns	**Non-settled**	**Hedge Funds Seeking Expense Reimbursement**	**No Reimbursement**	**Hedge fund Board Representation**	**No Board Representation**	**With Share Repurchases**	**Without Share Repurchases**
$Post_{it}$	0.03	0.033**	0.027	0.030**	0.033	0.028**	0.030**	0.049**
	(1.35)	(2.48)	(1.06)	(2.40)	(1.64)	(2.03)	(2.32)	(2.29)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,473	8,029	1,850	9,652	4,418	7,084	6,544	3,296
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.31	0.31	0.29	0.30	0.30	0.32	0.32	0.31

Table 11: Debt Maturity, Hedge Fund Activism and Target Firm Characteristics

This table examines the relationship between target firms' debt maturity (i.e., proportion debt maturing in more than 3 years) and hedge fund activism. The panel regressions are estimated on subsamples that are created based on firm characteristics such as *abnormal earnings*, *leverage*, *tangibility*, *CAPEX*, *R&D* and *cash holdings*. The variable definitions are provided in the Appendix. Low and High groups are determined based on terciles of the respective firm characteristic in the year prior to HFA. The bottom tercile is considered as the category 'Low', and the category 'High' is the top tercile. $Post_{it}$ is a dummy variable, which is equal to 1 for the three (3) years following HFA. The *t-statistics* (standard errors clustered at the firm level) – are displayed in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

	Abnormal Earnings		**Leverage**		**Tangibility**		**CAPEX**		**R&D**		**Cash Holdings**	
Variables	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**
$Post_{it}$	0.004	0.048**	0.036**	0.006	0.022	0.043**	0.029	0.040**	0.051***	0.003	0.061***	-0.011
	(0.21)	(2.60)	(2.29)	(0.29)	(1.03)	(2.21)	(1.36)	(2.04)	(2.83)	(0.12)	(3.09)	(-0.52)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,736	3,634	3,686	3,781	3,523	3,821	3,611	3,690	2,581	2,513	3,904	3,556
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.33	0.33	0.17	0.19	0.31	0.16	0.34	0.21	0.33	0.20	0.23	0.22

Internet Appendix

"Hedge Fund Activism and Debt Maturity Structure"

Table 1A: Hedge Fund Activism - Stated Objectives, Campaign Characteristics and Market Reaction

This table provides campaign characteristics across five major stated objectives of activism by hedge funds at the time of filing Schedule 13D with the SEC. We also report target firms' average stock price reaction over 21 days (10 days before and after) around the dates of 13D filings. We identify hedge fund activism events based on the 13D filings and from the SharkRepellent database. Schedule 13D requires filers to disclose their identity (e.g., individuals, corporations, mutual funds, or hedge funds etc.), percentage stake held and a statement of purpose. We manually categorise the stated objectives of the activist hedge funds into five non-mutually exclusive groups, i.e., value maximization, corporate governance reforms, changes in capital structure, changes in business strategies and sale of target firms. The total number of events and the percentage of the overall sample are reported for different campaign characteristics, such as - campaigns involving the adoption of poison pills by target firms, privately negotiated settlements between hedge funds and target firms, board representations by hedge funds and switching from Schedule 13G to 13D by hedge funds. Hedge funds' conversion from 13G to 13D filings indicate a change in their intention to be actively involved in target firms' corporate affairs, i.e., a change from being a passive owner to an active investor. The final row of the table reports stock market's reaction to activism campaigns based on average values of CARs (cumulative abnormal returns) for the target firms' stock prices, computed over -10 to +10 days of 13D filings by activist hedge funds.

		Stated Objectives				
Campaign Features	**All**	**Value Maximization**	**Corporate Governance**	**Capital Structure**	**Business Strategies**	**Sale of Target**
Total Campaigns	1263	543	831	341	700	393
Sample %	100	42.99	65.79	27.00	55.42	31.12
Target Adopted Poison Pill	69	24	53	19	44	41
Sample %	5.46	1.90	4.19	1.50	3.48	3.25
Privately Settled	311	22	301	65	164	67
Sample %	24.62	1.74	23.83	5.15	12.98	5.30
Activist Got Board Seats	420	22	406	85	213	86
Sample %	33.25	1.74	32.14	6.73	16.86	6.81
Switch from 13G to 13D	88	39	61	22	49	18
Sample %	6.97	3.08	4.82	1.74	3.88	1.43
CAR [-10 to +10]	3.1%	2.5%	3.2%	3.6%	3.4%	4.8%

Table 2A: Dynamics of Debt Maturity around Hedge Fund Activism

This table documents the impact of hedge fund activism on debt maturity from 3 years before to 3 (and 5) years after HFA. The sample includes the target firms and the matched control firms, and the dependent variable is *DebtMaturity*$_{it}$, i.e., debt maturing in more than 3 years. We use the following regression specification:

$$DebtMaturity_{it} = \alpha_i + \alpha_t + \sum_{-3}^{+3} \beta_k \{d[t+k]_{it} \times (Target_i)\} + \sum_{-3}^{+3} \lambda_k \, d[t+k]_{it} + \gamma . Control_{it} + \varepsilon_{it}$$

Target$_i$ is a dummy variable equal to 1 for target firm i and *Control*$_{it}$ is a vector of control variables. The dummy variables $d[t-3]_{it} \ldots d[t+5]_{it}$ capture firm–year observations from three years before to three years after the intervention year – equal to 1 and zero otherwise. These event years are taken as pseudo-event years for control firms. Control variables are included along with the firm and year fixed effects. The *t-statistics* (standard errors clustered at the firm level) – are displayed in parentheses. Column (1) reports the regression specification with the trend in debt maturity up to 3 years after the event, and column (2) reports the regression with the trend up to 5 years after the event. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively. All the variables are defined in the Appendix.

Variables	**(1)**	**(2)**
d[t-3]	-0.014	-0.011
	(-1.28)	(-0.94)
d[t-2]	0.013	0.017
	(1.06)	(1.32)
d[t-1]	0.013	0.017
	(0.96)	(1.22)
d[t]	0.021	0.025*
	(1.53)	(1.77)
d[t+1]	-0.019	-0.015
	(-1.35)	(-0.98)
d[t+2]	-0.014	-0.008
	(-0.92)	(-0.54)
d[t+3]	0.018	0.024
	(1.11)	(1.34)
d[t+4]	--	0.051***
		(2.67)
d[t+5]	--	0.012
		(0.59)
Target$_i$**d[t-3]*	0.003	-0.001
	(0.16)	(-0.08)
Target$_i$**d[t-2]*	-0.007	-0.011
	(-0.40)	(-0.62)
Target$_i$**d[t-1]*	0.001	-0.003
	(0.06)	(-0.16)
Target$_i$**d[t]*	-0.002	-0.006
	(-0.09)	(-0.31)
Target$_i$**d[t+1]*	0.045**	0.040**
	(2.31)	(2.01)
Target$_i$**d[t+2]*	0.053**	0.048**
	(2.53)	(2.21)
Target$_i$**d[t+3]*	0.009	0.003
	(0.39)	(0.13)
Target$_i$**d[t+4]*	--	-0.053**
		(-1.98)

*Target$_i$*d[t+5]*	--	-0.038
		(-1.37)
Firm Size	0.049***	0.049***
	(4.93)	(4.89)
Firm Size^2	0.0004	0.0004
	(0.41)	(0.42)
Leverage	0.374***	0.374***
	(7.22)	(7.23)
MB	-0.010***	-0.010***
	(-4.52)	(-4.53)
Abnormal Earnings	0.011***	0.011***
	(2.79)	(2.80)
Asset Maturity	-0.001*	-0.001*
	(-1.66)	(-1.65)
Asset Volatility	-0.090*	-0.089*
	(-1.67)	(-1.67)
Tangibility	0.081*	0.081*
	(1.85)	(1.85)
Log(Age)	-0.028**	-0.029**
	(-2.50)	(-2.51)
Term Spread	20.444*	20.020*
	(1.79)	(1.76)
Recession Dummy	-0.748**	-0.732**
	(-2.04)	(-2.01)
Observations	22,019	22,019
Firm FE	Yes	Yes
Year FE	Yes	Yes
R^2	0.25	0.25

Table 3A: Robustness Analysis - Debt Maturity and Hedge Fund Activism

This table reports various robustness tests that investigate the impacts of hedge fund activism on debt maturity. The sample period is 2000 to 2017. Column (1) reports Tobit regression model to account for the truncated nature of our variable of interest, i.e., debt maturing in more than 3 years, column (2) considers a separate set of control group firms within the same two-digit SIC industry codes, having the closest proportion of debt maturing in more than 3. Following Johnson (2003), Column (3) reports 3SLS regression results where *debt maturity* and *leverage* are jointly endogenous. Column (4) considers long-term debt to total debt as the dependent variable in the regression specification. $Target_i$ is a dummy variable which takes the value 1 for target firms and $Post_{it}$ is a dummy variable which is equal to 1 for the three (3) years following 13D filings by activist hedge funds. The event and post-event years are taken as pseudo-event / post-event years for the control firms. The test statistics are displayed in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

Variables	**(1)**	**(2)**	**(3)**	**(4)**
$Target_i$	0.030	--	0.023***	--
	(1.49)		(4.52)	
$Post_{it}$	-0.035*	-0.004	-0.015	-0.003
	(-1.74)	(-0.32)	(-1.63)	(-0.28)
$Target_i * Post_{it}$	0.069**	0.033**	0.037***	0.024*
	(2.44)	(2.03)	(2.93)	(1.70)
Controls	Yes	Yes	Yes	Yes
Observations	22,019	18,435	22,019	18,076
Industry FE	Yes	No	Yes	No
Firm FE	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes
R^2 / *Pseudo* R^2	0.26	0.28	0.35	0.20

Table 4A: Target Firms' New Loans & Bonds

This table provides an overview of new loans and bonds raised by target firms within 5 years before and 5 years after HFA. We collect new loans and bonds issuance information from the Thomson Reuters' 'Refinitiv Eikon' database. We use debt issuers' six-digit CUSIP code to identify loans and bonds issued by target firms over the period 1995 to 2017.

Panel A reports number of target firms with new loans/bonds information number of new debt issues and number of tranches identified in the database.

Panel B provides average (median) values of loans and bonds *Issue Size* (Eikon database variable: Package Amount/Principal Amount (All Markets), in US million dollars), *Tranche Amount* (Eikon database variable: Tranche Amount/Principal Amount (This Market), in US million dollars), *Loan/Bond Maturity* (in years), *Loan Spread* (Eikon database variable: All In Drawn Loan Spread, basis points above LIBOR) and bond *Coupon* rate (expressed in percentage) before and after HFA. Panel B also reports average difference in loan and bond variables between pre- and post-HFA. Median values are reported in parentheses, *t* values of mean differences are reported in square brackets and ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

Panel A: Loans & Bonds Issued by Target Firms from 1995 to 2017

	# Target Firms	# Issues	# Tranches
Loans	430	2240	3300
Bonds	387	2316	2450

Panel B: Characteristics of Loans and Bonds Issued by Target Firms from 5 Years Before to 5 Years After HFA

	Loans				Bonds			
Variables	**All t-5 to t+5**	**Pre t-3 to t-1**	**Post t to t+3**	**Post-Pre**	**All t-5 to t+5**	**Pre t-3 to t-1**	**Post t to t+3**	**Post-Pre**
Issue Size	1160.10	1374.11	1153.96	-220.10*	1929.74	1689.07	2562.47	873.40***
	(450)	(500)	(400)	[-1.77]	(800)	(800)	(1090)	[4.38]
Tranche Amount	670.68	739.08	697.86	-41.22	643.73	657.44	709.22	51.78
	(250)	(250)	(241)	[-0.51]	(500)	(500)	(500)	[1.2]
Loan/Bond Maturity	4.33	4.29	4.46	0.1631*	9.94	10.16	9.47	-0.69
	(5)	(5)	(5)	[1.66]	(8)	(8)	(8)	[-1.29]
Loan Spread	240.13	226.75	260.94	34.19***				
	(200)	(200)	(225)	[3.77]				
Coupon (%)					5.17	5.26	4.75	-0.50***
					(5)	(5.25)	(4.48)	[-2.83]
No. of Firms (N)	367	248	262		332	207	201	