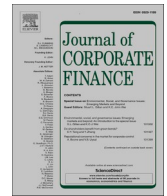




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Short-term debt catering

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ABSTRACT

Focusing on investments by US money market mutual funds (MMFs) in nonfinancial commercial paper, this study shows that the demand for corporate short-term securities by preferred-habitat investors is positively associated with the use of short-term debt by firms. Consistent results are found when using a longitudinal dataset with a monthly frequency and a firm-quarter panel dataset; instrumenting the demand by MMFs; measuring the demand by MMFs at the level of individual issuers; and exploiting an exogenous change in regulation for identification. These findings support the idea that corporations cater to investors' preferences in choosing their debt maturity structure.

1. Introduction

Debt maturity decisions can be influenced by the market conditions that a firm faces when raising debt capital (e.g., [Baker et al., 2003](#); [Faulkender, 2005](#)). Recent studies suggest that one key factor driving market conditions is the identity of the investors operating in the fixed income market. The asset pricing literature (e.g., [Vayanos and Vila, 2009](#); [Greenwood and Vayanos, 2014](#); [Kojien and Yogo, 2019](#)) demonstrates that in the presence of investors with heterogeneous preferences for assets with certain characteristics (preferred-habitat investors), a demand or supply shock in a certain market segment can lead to persistent effects on relative prices—a phenomenon at times referred to as “clientele effects” (e.g., [Amihud and Mendelson, 1986](#)). For example, [Greenwood and Vissing-Jorgensen \(2018\)](#) find that the term structure of the yield curve is strongly influenced by the relative size of pension funds and insurance companies, two groups regarded as having the very long-term maturity segment of the fixed income market as their preferred investment habitat. These clientele effects can ultimately impact the debt maturity decisions of corporations, as the latter “fill the gap” ([Greenwood et al., 2010](#)) by catering to investors' excess demand (or lack thereof) in certain maturity segments to minimize their costs of financing. Consistent with this idea, [Butler et al. \(2020\)](#) show that the decline in the share of corporate bonds held by insurance companies can explain why the average maturity of long-term bonds issued by US corporations has been shrinking over the past few decades (e.g., [Custódio et al., 2013](#); [Harford et al., 2014](#)).

The aim of this article is to investigate the impact of clientele effects on the debt maturity structure of US nonfinancial corporations by focusing on the demand for short-term (i.e., one year or less) corporate securities by an other specific group of preferred-habitat investors: money market mutual funds (MMFs). MMFs are open-end funds investing in highly liquid, low-risk assets. Whereas so-called government MMFs only invest in securities issued by governments and government agencies, prime MMFs invest in various asset classes, including unsecured commercial paper (CP) issued by nonfinancial corporations. Money market mutual funds are a relevant group of institutional investors, with a size comparable to the entire equity mutual fund industry ([Kacperczyk and Schnabl,](#)

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2013). According to data from the Securities and Exchange Commission (SEC), between 2011 and the first half of 2018 (the period covered in this study) the average amount of assets under management (AUM) by US prime MMFs was USD 1.4 trillion.

The key feature of interest of MMFs in the context of this study is that—by design—they are preferred-habitat investors operating predominantly in the short-term maturity segment of the market. In its current form, Rule 2a-7 of the Investment Company Act of 1940 mandates that a US money market fund “generally may not acquire any security with a remaining maturity greater than 397 days”, and “the dollar-weighted average maturity of the securities owned by the fund may not exceed 60 days” (Securities and Exchange Commission, 2014). According to Kacperczyk and Schnabl (2010), MMFs are the main investors in CP; as shown in Section 2.1, they hold on average one-third of all nonfinancial CP outstanding. CP itself is the main form of marketable short-term debt for nonfinancial corporations and generally constitutes a relevant part of all corporate short-term debt especially for large, well-established corporations (Kahl et al., 2015). To the extent that issuers cater to preferred-habitat investors in deciding the maturity of their debt, a shock to the demand from MMFs is thus expected to have a noticeable impact on the use of short-term debt by corporations.

I test this prediction using US data and two samples— a longitudinal dataset with monthly frequency and a firm-quarter panel dataset— covering the period between January 2011 and June 2018. To address endogeneity and estimate the effect of the demand from MMFs, a number of complementary empirical strategies are deployed.

First, two-stage least squares (2SLS) and fixed-effects (FE) 2SLS models are estimated on the longitudinal dataset and the panel dataset, respectively. The size of government MMFs is used to instrument the overall share of nonfinancial CP held by prime MMFs, thereby exploiting the negative relation between the net inflows for prime MMFs and government MMFs (Cipriani and La Spada, 2020; Gallagher et al., 2020) and the fact that the latter do not invest in commercial paper.

Second, I estimate FE models that include interaction terms between rating indicators and the proxy for the demand by MMFs. Within each asset class, MMFs invest predominantly in securities receiving the highest short-term rating (first-tier securities); the relation between the general demand of MMFs for nonfinancial CP and corporate debt maturity should thus be primarily driven by firms rated as first tier.

Third, the FE models are estimated using an alternative, firm-level proxy for the demand by MMFs. Rule 2a-7 mandates that each money market fund files at a monthly frequency an N-MFP form containing a detailed list of all the securities it holds and the corresponding amounts. Using these lists, I identify all the commercial paper issued by US nonfinancial corporations and held by MMFs by the end of each quarter. I then use this information to build a proxy for the demand by MMFs that varies both across firms and over time; the latter allows me to include time fixed effects in the models, effectively controlling for the potential confounding effect of any unobserved macro factor.

Finally, I exploit for identification a change in regulation affecting to different degrees the demand by MMFs for securities in different rating classes. The 2015 reform of Rule 2a-7 resulted in a general decrease in the amount of AUM for prime MMFs (Cipriani and La Spada, 2020) but a relative increase in their demand for securities rated below first tier (Lugo, 2019). Akin to, e.g., Hendershott et al. (2011), I exploit this change in regulation for identification by estimating FE-2SLS models in which the first stage is a difference-in-differences model; firms rated first tier and firms rated below first tier constitute the reference group and the treated group, respectively.

Regardless of the empirical strategy considered, the estimated effect of the demand by MMFs for nonfinancial commercial paper is always positive and statistically significant at customary confidence levels. The effect is also economically relevant; on average, a one-standard-deviation increase in the share of nonfinancial commercial paper held by MMFs is associated with an increase of one-half of a percentage point in the share of short-term over total debt for nonfinancial corporations. As expected, the relation between the general demand by MMFs and the use of short-term debt by corporations is mostly driven by firms rated as first tier. The demand by MMFs for nonfinancial commercial paper thus appears to be a relevant determinant of the use of short-term debt by nonfinancial corporations.

Related literature. My study primarily relates to the emerging literature on the role of clientele effects in explaining variations over time in the maturity of corporate debt. This literature so far has predominantly focused on the gap-filling effect produced by the (excess) supply of government securities in different maturity segments. Greenwood et al. (2010), Badoer and James (2016), and Lugo and Piccillo (2019) all provide evidence of a negative effect of government debt maturity on corporate debt maturity. Carlson et al. (2016) focus specifically on the short-term segment of the credit market and demonstrate that the public supply of short-term securities is negatively correlated with the issuance of short-term securities by corporations. The literature on the provision of safe assets (e.g., Gorton, 2017) similarly shows that private financial institutions cater to the unmet demand for safe securities issued by the government— including in the short-term segment of the market (Kacperczyk et al., 2017). Instead of focusing only on the (excess) supply of government securities, my study takes the complementary approach of looking at the relative demand for corporate securities coming from a specific group of investors who can be clearly identified as preferred-habitat investors (PHIs). A straightforward implication of the model proposed by Greenwood et al. (2010) is that, all else equal, changes in the relative demand from PHIs¹ for corporate securities would produce effects similar to those produced by changes in the excess supply of government securities in the same maturity segment. The advantage of focusing on the demand by PHIs—as done in this study—is that it does not require any assumption on the substitutability between private and public securities; the latter plays instead a central role in all of the aforementioned studies. The main prediction tested in this study on the effect of MMFs on corporate debt maturity would hold even if corporate and government debt markets were fully segmented.

The study most closely related to this one is the paper by Butler et al. (2020), who also investigate the effect on corporate debt

¹ Exogenous demand shocks can only come from preferred-habitat investors; other investors are assumed in Greenwood et al. (2010) to be risk-averse arbitrageurs whose level of investment across different maturity segments is determined endogenously.

maturity of the demand coming from a specific group of PHIs. Whereas [Butler et al. \(2020\)](#) focus on the (very) long-term maturity segment and only consider long-term debt, this study focuses on the opposite side of the maturity spectrum. An increase in the use of short-term debt directly translates into an increased exposure to roll-over risk. Studies such as [Almeida et al. \(2011\)](#) show that this exposure has severe real consequences: when credit conditions tighten, firms needing to refinance their debt significantly cut their investments. Unsurprisingly, one of the very first programs introduced by the Federal Reserve in response to the 2020 COVID-19 crisis is a Commercial Paper Funding Facility to support businesses' access to credit.² Understanding what drives a firm's decision to rely on short-term debt is therefore important to assess the resilience of the real economy to potential financial turmoil. To the best of my knowledge, this study is the first one to demonstrate that the demand by money market funds for CP is an important factor influencing the reliance on short-term debt by nonfinancial corporations. The influence of PHIs on capital structure decisions could vary in principle with the maturity segment considered; for example, demand shocks can have a stronger impact on long-term rates than on short-term rates ([Vayanos and Vila, 2009](#); [Greenwood and Vayanos, 2014](#)). This study demonstrates that short-term preferred-habit investors do have an economically relevant influence on corporate debt maturity. More generally, this study contributes to the literature addressing how issuers cater to investors' preferences (e.g., [C el erier and Vall ee, 2017](#)) and to the literature assessing the behavior and impact of money market funds (e.g., [Kacperczyk and Schnabl, 2013](#); [Ivashina et al., 2015](#); [Di Maggio and Kacperczyk, 2017](#); [Gallagher et al., 2020](#)).

The remainder of the article is organized as follows. [Section 2](#) describes the two datasets used. [Section 3](#) presents the empirical results. Finally, [Section 4](#) concludes the paper with some final remarks.

2. Data

2.1. Longitudinal dataset

The first sample used in this study is a longitudinal dataset covering the period between January 2011 and June 2018 at a monthly frequency (90 observations). The starting point of the sampling period is determined by the availability of MMF holdings data. Descriptive statistics for the variables included in the longitudinal dataset are presented in [Table 1](#). The amount of (marketable) short-term debt used by US corporations is proxied by *CP*, defined as the total amount of nonfinancial commercial paper outstanding, scaled by the total amount of debt securities by nonfinancial corporations outstanding at the end of the previous quarter. On average, commercial paper represents 4.5% of all marketable debt of US nonfinancial corporations. In the spirit of [Butler et al. \(2020\)](#), the relative demand from money market mutual funds for corporate securities is proxied by the ratio between the amount of nonfinancial commercial paper held by MMFs and the total amount of nonfinancial commercial paper outstanding ($MMF\%$). The theoretical model by [Greenwood et al. \(2010\)](#) implies a positive relation between the market share of preferred-habitat investors in a given segment and the potential for a demand gap to be filled by issuers in that segment. When supply is scarce, non-preferred habitat investors simply tilt toward other relatively underpriced market segments. By definition, this is more difficult or impossible for preferred-habitat investors.

[Fig. 1](#) presents the evolution of $MMF\%$ over the sampling period. Money market mutual funds are clearly key investors in nonfinancial commercial paper, holding on average 33% of the outstanding amount. Up to the first half of 2015, MMFs hold between approximately 35% and 55% of all nonfinancial CP outstanding. The decline in $MMF\%$ observed by the end of 2015 coincides with the introduction of the reform of Rule 2a-7, which results in a significant reduction in the AUM of prime money market funds ([Cipriani and La Spada, 2020](#)). The analyses presented in [Section 3.5](#) exploit this reform as an exogenous shock for identification.

Three variables are used to control for interest rate conditions: y_{St} is the 1-year yield on US government bonds; $y_{Lt} - y_{St}$ is the difference between the 20-year yield on US government bonds and y_{St} ; and *Spread* is the difference between the 10-year yield on triple-B US corporate bonds (source: Thomson EIKON) and the 10-year yield on US government bonds. The VIX index (*VIX*) is used as a proxy for volatility (source: Thomson EIKON). Akin to [Greenwood et al. \(2010\)](#) and [Lugo and Piccillo \(2019\)](#), the ratio between the amount of US marketable public debt maturing within one year (D_1^G) and the total amount across all maturities (D^G) is used to control for the (negative) gap-filling effect of the maturity of government debt on the maturity of corporate debt. US government data are from the US Treasury quarterly refunding documents; unless otherwise stated, all other data are retrieved from the Data Download Program of the Federal Reserve.³ All ratios and yields are expressed in percentage points.

2.2. Panel dataset

Firm-level analyses are performed using a firm-quarter panel dataset covering the period between quarter 1 of 2011 and quarter 2 of 2018 (30 periods). Accounting data are from the North American (NA) Compustat database. Excluding financial and regulated industries (1-digit SIC codes 6 and 9), observations with missing values for the considered variables from the NA Compustat database, and firms observed in only one quarter results in 49,684 observations for 2984 firms. This sample is henceforth referred to as the panel dataset used in this study. Short-term credit ratings (retrieved from Thomson EIKON) are available for a subsample of 4722 observations (243 firms).

As is customary (e.g., [Billett et al., 2007](#); [Greenwood et al., 2010](#); [Lugo and Piccillo, 2019](#)), the debt maturity structure is proxied by the relative weights of short-term and long-term debt outstanding. To this end, the variable *STTD* is computed for each firm *i* and

² <https://crsreports.congress.gov/product/pdf/IN/IN11332>

³ <https://www.federalreserve.gov/datadownload/>

Table 1
Longitudinal dataset, descriptive statistics.

Variable	N	Mean	SD	P1	Median	P99
<i>CP</i>	90	4.48	0.50	3.30	4.50	5.57
<i>MMF</i> [%]	90	33.93	12.37	10.42	37.83	52.13
<i>D</i> _S ^G / <i>D</i> ^G	90	26.32	1.49	23.61	26.29	29.62
<i>Spread</i>	90	2.64	0.47	1.56	2.65	3.55
<i>y</i> _{St}	90	0.52	0.58	0.09	0.22	2.33
<i>y</i> _{Lt} - <i>y</i> _{St}	90	2.29	0.85	0.58	2.25	4.07
<i>VIX</i>	90	16.43	5.22	9.51	15.51	42.96

This table presents descriptive statistics for the variables included in the monthly time-series dataset. The dataset covers the period between January 2011 and June 2018 (90 observations). *CP* is the total amount of nonfinancial commercial paper outstanding at the end of the month (code: dtbspckn), scaled by the total amount of debt securities of nonfinancial corporations outstanding (tdsamriaoncus) at the end of the previous quarter. *MMF*[%] is the ratio between the amount of nonfinancial commercial paper held by MMFs and the total amount of nonfinancial commercial paper outstanding. *y*_{St} is the 1-year yield on US government bonds (riflfgcy01); *y*_{Lt} - *y*_{St} is the difference between the 20-year (riflfgcy20) yield on US government bonds and *y*_{St}; and *Spread* is the spread between the 10-year yield on triple-B US corporate bonds (us10ybaacy) and the 10-year yield on US government bonds (riflfgcy10). *VIX* is the VIX index. *D*_S^G/*D*^G is the ratio between the amount of US marketable public debt maturing within one year and the total amount of US marketable public debt. All ratios, yields, and spreads are expressed in percentage points.

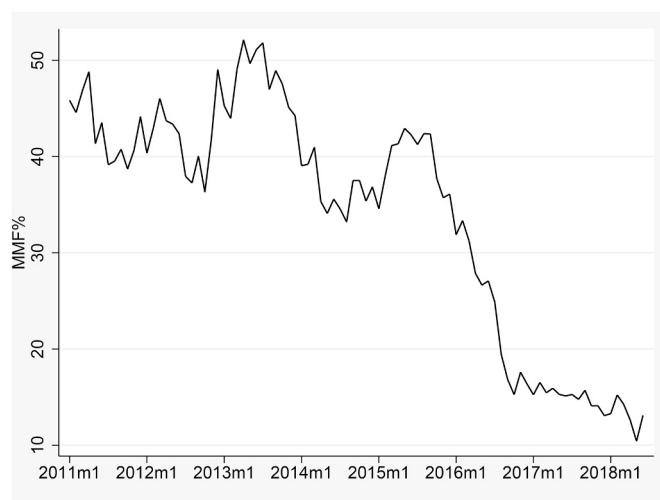


Fig. 1. Share of nonfinancial commercial paper outstanding held by money market funds.

This figure presents the evolution over time of the share of nonfinancial commercial paper outstanding that is held by money market funds (*MMF*[%], defined as in Table 1). The share is expressed in percentage points.

period *t* as the share (in percentage points) of short-term debt (*ST*) over total debt. *ST* is defined as the amount of debt in current liabilities— i.e., the sum of short-term borrowing and the current portion of long-term debt— minus the current portion of long-term debt. Total debt is defined as long-term debt plus debt in current liabilities. Observations characterized by negative values for short-term or long-term debt are excluded.

Two different proxies for the demand for corporate debt by money market funds are considered. The first, *MMF*[%], proxies for the aggregate demand of MMFs in each period *t* for all nonfinancial commercial paper; it is defined as in Section 2.1 and is measured as of the last month of each quarter. The second variable (*mmf*[%]) proxies for the demand by MMFs faced by each firm *i* in each period *t*. The starting point to build *mmf*[%] are the MFP filings— retrieved from Edgar— that all US money market mutual funds have to submit every month. The filings cover the whole sample period considered in this study. Each MFP file contains the amount held in each security included in the portfolio of a given fund at the end of a given month. From these lists, I retain only those securities flagged as commercial paper not issued by financial corporations (258,610 fund-month-security observations). This category of securities in the MFP filings includes not only commercial paper issued by NA nonfinancial corporations but also CP issued by other institutions such as foreign corporations, universities, hospitals, and local utilities. To ensure that every CP issued by an NA nonfinancial corporation is correctly identified, using their issuer's name, I hand match the commercial paper included in the MFP filings to the firms in the NA Compustat universe. Approximately 54% of the 258,610 fund-month-security observations from the MFP filings correspond to a CP issued by a firm in the NA Compustat dataset. In total, 308 unique (based on their gvkey identifier) firms from the NA Compustat dataset have issued any commercial paper held by money market funds during the sampling period. Holdings of CP by all MMFs are aggregated at the issuer-month level, and the last non-missing month is retained for each issuer-quarter. The resulting firm-quarter variable is set equal to zero for firm-quarter observations in the general panel dataset where no holding by MMFs is observed. The

variable mmf_t^{96} is then set equal to the total amount of commercial paper of i held by all US money market mutual funds as a whole in t , scaled by ST and expressed in percentage points. By definition, the firm-level demand by MMFs cannot be meaningfully measured for corporations that do not have any amount of short-term debt outstanding; this reduces the sample of usable observations to 12,351 (1064 firms).

The dataset includes a series of key firm-level control variables that have been found in previous studies (e.g., [Barclay et al., 2003](#); [Berger et al., 2005](#); [Billett et al., 2007](#); [Fan et al., 2012](#); [Johnson, 2003](#)) to be relevant drivers of corporate debt maturity decisions. All continuous firm-level explanatory variables are winsorized at the 1st and 99th percentiles. The dataset also include the same macro control variables described in [Section 2.1](#). All macro variables are measured in the last month of each quarter. Descriptive statistics for variables included in the panel dataset are reported in [Table 2](#). The definitions of the firm-level variables are summarized in the table's caption.

Two rating indicators are defined for the subset of observations where short-term credit ratings assigned by Moody's, S&P, and/or Fitch are available. $T1$ ($T2$) is set equal to one for firms rated P-1 (P-2) or equivalent and set equal to zero otherwise. When firms are rated by more than one credit rating agency (CRA), the customary approach used by financial regulators to focus on the second-best rating ([Bongaerts et al., 2012](#); [Lugo, 2019](#)) is applied. For example, firms with multiple ratings need to be rated P-1 or equivalent by at least two CRAs for $T1$ to be set equal to one. Within the rated firm-level dataset, approximately 29% of observations are rated as first tier (i.e., $T1 = 1$), and 59% are rated as second tier ($T2 = 1$); the remaining 12% of observations are rated below P-2 or equivalent.

3. Results

3.1. Demand and corporate commercial paper outstanding

This section presents the results of analyses conducted using the longitudinal dataset. Endogeneity, and reverse causality in particular, is a relevant source of concern in this setting. By construction, a positive exogenous shock in the amount of commercial paper outstanding would mechanically translate into an increase in CP (the dependent variable) and a decrease in MMF_t^{96} (the main explanatory variable), leading to a downward bias in the estimated effect of the demand by MMFs. An increase in the supply of commercial paper could also incentivize prime MMFs to allocate a larger share of their portfolios to CP, leading, all else being equal, to an upward bias in the estimated coefficient for MMF_t^{96} .

To address these potential reverse causality biases, I estimate two-stage least squares (2SLS) models using the natural logarithm of the total amount of assets under management by government MMFs (AUM_{gov}) as an exogenous instrument for MMF_t^{96} . The numerator of MMF_t^{96} can be seen as the product of two components: the total amount of AUM for prime MMFs and the share of their portfolios allocated to nonfinancial commercial paper. The size of government MMFs is negatively related to the first component: an increase in net inflows for government MMFs is associated on average with a decrease in net inflows for prime MMFs (e.g., [Cipriani and La Spada, 2020](#); [Gallagher et al., 2020](#)). However, there is no clear reason why the size of government MMFs should be directly linked to the total amount of commercial paper outstanding, since government MMFs do not invest in commercial paper. The resulting 2SLS model is presented in [Eq. 1](#)

$$\begin{aligned} CP_t &= \alpha_1 + \beta_1 MMF_t^{96} + \sum_j \gamma_j X_{j,t} + \varepsilon_t \\ MMF_t^{96} &= \alpha_2 + \beta_2 \ln(AUM_{gov})_t + \sum_j \theta_j X_{j,t} + u_t \end{aligned} \quad (1)$$

where X_j is the j th element of the set of control variables included in the model. A remaining concern in this setting is that there could be additional unobservable macro factors that may correlate with both the outcome and the explanatory variables of interest. The analyses presented in [Sections 3.4 and 3.5](#) specifically address this potential omitted variable bias.

Estimates from the model illustrated in [Eq. 1](#) are presented in [Table 3](#). For each model, columns labeled (i) and (ii) report the estimated coefficients for the first- and second-stage equation, respectively. Statistical significance is assessed using [Newey et al. \(1987\)](#) standard errors; the number of lags is selected for each model using the procedure proposed by [Newey and West \(1994\)](#).

Model (1) is the most parsimonious, including among the control variables only the market rates, the VIX index, and the proportion of short-term to total government marketable debt outstanding. Models (2) and (3) include eleven indicators for the calendar month observed; this is done to control for potential seasonal variations in the use of short-term debt. Model (3) also includes a linear time trend.

As expected, the estimated coefficient for $\ln(AUM_{gov})$ in the first stage is negative and highly statistically significant, with t-statistics ranging between 8.7 and 14.7. The estimated coefficient for MMF_t^{96} in the second stage is positive as predicted and statistically significant at least at the 1% confidence level in all model specifications. The effect is also economically relevant: an increase by one standard deviation in the share of commercial paper held by MMFs is associated with an increase of 0.5–0.7 percentage points in the amount of CP as a share of the total amount of all US corporate debt securities outstanding, or 11–16% of the sample average of CP . An

Table 2
Panel dataset, descriptive statistics.

Variable	N	Mean	SD	P1	Median	P99
Basic firm-level variables						
<i>STTD</i>	49,684	7.18	21.36	0.00	0.00	100.00
<i>PD</i>	49,684	0.72	3.47	0.00	0.05	11.51
<i>LNTA</i>	49,684	6.89	2.03	2.43	7.00	11.49
<i>TDTA</i>	49,684	30.15	21.94	0.08	26.93	100.00
<i>AssMat</i>	49,684	19.23	27.67	1.31	10.16	149.30
<i>MtB</i>	49,684	2.10	1.79	0.64	1.61	8.83
Additional firm-level variables						
<i>mmj</i> ^{6%}	12,351	0.37	1.22	0.00	0.00	4.73
<i>T1</i>	4724	0.29	0.46	0.00	0.00	1.00
<i>T2</i>	4724	0.59	0.49	0.00	1.00	1.00
Macro variables						
<i>MMF</i> ^{6%}	49,684	32.54	13.05	13.08	36.86	51.13
<i>D_S^G/D^G</i>	49,684	25.87	1.39	23.61	25.75	28.69
<i>Spread</i>	49,684	2.57	0.46	1.77	2.55	3.39
<i>VIX</i>	49,684	15.39	3.39	9.51	15.51	24.50
<i>y_{St}</i>	49,684	0.61	0.63	0.10	0.28	2.33
<i>y_{Lt} - y_{St}</i>	49,684	2.10	0.78	0.58	2.17	3.59

This table presents descriptive statistics for the variables included in the firm-quarter panel dataset. The dataset includes 2984 firms observed quarterly between quarter 1 of 2011 and quarter 2 of 2018. The sample also includes the macro variables presented in Table 1, measured in the last month of each quarter. *STTD* is the share of short-term debt (*ST*) over total debt, where *ST* is defined as debt in current liabilities (code: dlc) minus long-term debt maturing within 1 year (ddl), and total debt is the sum of debt in current liabilities (dlc) and long-term debt (dltt). *mmj*^{6%} is the amount of commercial paper issued by a specific firm *i* and held by US money market mutual funds as a whole (source: MFP filings) at the end of each quarter, scaled by *ST* and expressed in percentage points. *LNTA* is the natural logarithm of total assets (at). *TDTA* is the share of total debt over total assets. *AssMat* is defined as in Billett et al. (2007) as the weighted average of the maturity of long-term assets and the maturity of current assets. The former is proxied by gross property, plant, and equipment (ppent) divided by depreciation and amortization (dp); the latter is proxied by current assets (act) divided by the cost of goods sold (cogs). *MtB* is computed as the sum of the market value of equity (mkvalt) and the book value of other liabilities (lt), all divided by total assets. *PD* is the firm-level estimated probability of default over a 1-year horizon (source: CRI database). Short-term ratings assigned by Moody's, S&P, and/or Fitch are available via Thomson EIKON for a subset of 4724 observations corresponding to 245 distinct firms. *T1* (*T2*) is an indicator equal to one if the company is rated P-1 (P-2) or equivalent by Moody's, S&P, or Fitch; it is set equal to zero if the firm is otherwise rated. In case of multiple ratings, the second-best rating is considered. All shares and probabilities are expressed in percentage points. All data are from Compustat unless otherwise indicated.

increase in the demand for commercial paper by MMFs is thus linked to a sizable increase in the relative use of this debt instrument by US corporations.⁴ In the next section, I illustrate the relation between the share of all nonfinancial CP outstanding held by MMFs and the use of short-term debt by individual firms.

3.2. Firm-level evidence on the use of short-term debt

To investigate the relation between the aggregate demand by MMFs and the use of short-term debt at the firm level, I estimate a series of fixed effects (FE) models on the panel dataset; the dependent variable is *STTD*. Estimated coefficients and their standard errors—robust to heteroskedasticity and clustered by both firms and periods—are reported in Table 4.

All models include among the regressors the macro-level and basic firm-level control variables presented in Table 2. In Models (3) and (4), *MMF*^{6%} is again instrumented using the natural logarithm of the total amount of assets under management by government money market mutual funds. Models (2) and (4) augment Models (1) and (3), respectively, by including three indicators for the specific quarter observed to control for potential seasonality in the use of short-term debt by firms.

These results are consistent with those obtained from the analyses at the aggregate level. The estimated coefficient for *MMF*^{6%} is always positive and statistically significant at least at the 5% confidence level, again pointing toward a positive correlation between the demand for short-term securities by money market mutual funds and the use of short-term debt by corporations. The sign of estimated coefficients for the firm-level control variables is generally aligned with what has been found by previous studies on corporate debt maturity (e.g., Stohs and Mauer, 1996): all else being equal, the use of short-term debt is positively correlated with credit risk (*PD*) and negatively correlated with size (*LNTA*) and leverage (*TDTA*).

⁴ As a robustness check, in unreported analyses I estimate models similar to those presented in Eq. 1 but where *CP_t* is replaced with the natural logarithm of one plus the USD amount of commercial paper outstanding and *MMF_t*^{6%} is replaced with the natural logarithm of one plus the USD amount of nonfinancial commercial paper held by MMFs. Results are fully consistent with those presented in Table 3.

Table 3
Money market funds and short-term debt.

Dep. var.:	(1)		(2)		(3)	
	(i) MMF [%]	(ii) CP	(i) MMF [%]	(ii) CP	(i) MMF [%]	(ii) CP
MMF [%]		0.038*** (0.009)		0.037*** (0.009)		0.060*** (0.016)
ln(AUM _{gov})	-33.837*** (2.301)		-34.152*** (2.454)		-30.976*** (3.550)	
Spread	6.205** (2.963)	-0.593** (0.297)	6.412* (3.584)	-0.556* (0.325)	7.072** (3.419)	-0.868* (0.460)
Y _{St}	4.444** (2.088)	0.302 (0.238)	4.640* (2.743)	0.368* (0.221)	6.446** (2.966)	-0.187 (0.447)
Y _{Lt} - Y _{St}	4.336*** (1.431)	-0.336*** (0.123)	4.381*** (1.532)	-0.299** (0.118)	4.278*** (1.600)	-0.374*** (0.138)
VIX	-0.170 (0.119)	0.015* (0.009)	-0.173 (0.129)	0.015* (0.009)	-0.214* (0.126)	0.029** (0.012)
D _S ^G /D ^G	-0.122 (0.238)	-0.185*** (0.038)	-0.240 (0.281)	-0.186*** (0.033)	-0.934** (0.421)	-0.009 (0.103)
Trend					-0.081 (0.056)	0.020* (0.011)
Constant	492.140*** (37.531)	9.973*** (0.925)	501.671*** (39.250)	9.148*** (0.998)	526.064*** (40.700)	-8.476 (9.263)
Month ind.		No		Yes		Yes
No. obs.		90		90		90
Adj. R ²		0.277		0.586		0.456
NWLags		19		19		19

This table presents the estimated coefficients for a 2SLS model of the amount of US nonfinancial corporate commercial paper outstanding. Coefficient estimates for the first- and second-stage equations of each model are reported in columns indicated with (i) and (ii), respectively. The sample includes monthly observations from January 2011 up to June 2018 (inclusive). The dependent variable of the second-stage is *CP*. $\ln(AUM_{gov})$ is the natural logarithm of all assets under management by US government MMFs. *Trend* is a linear time trend. There are eleven month indicators; each of them is set equal to one if the observation is in a given calendar month and equal to zero otherwise (December is used as the baseline). The other variables are as defined in Table 1. Newey-West (1987) standard errors allowing for *NW* months of lags are reported in round brackets; the bandwidth for each model is selected following Newey and West (1994). *, **, and *** correspond to the coefficients being significant at 10%, 5%, and 1%, respectively.

3.3. Moderating role of credit ratings

By design, money market funds have to limit their exposure to the most risky assets. According to Lugo (2019), non-government MMFs allocate on average only approximately 0.5% of their portfolios to securities classified as second tier based on short-term ratings assigned by credit rating agencies. Rule 2a-7 of the Investment Company Act of 1940, as in place for most of the sampling period,⁵ forbids MMFs from investing in securities rated below the second tier; it also imposes a 3% maximum allowed portfolio allocation for second-tier securities for each individual fund.

This heterogeneity across rating classes in the demand by MMFs can be exploited to provide further evidence on the influence of the latter on firms' capital structure decisions. If the verified relation between the aggregate demand of MMFs for commercial paper and the use of short-term debt is due to firms catering to this class of investors, the relation should be mostly driven by firms rated as first tier and— to a lesser extent— by firms rated as second tier.

To test this prediction, I estimate FE models for the use of short-term debt on the sample of rated firms and include among the explanatory variables two interaction terms. The first interaction term is the product of $MMF^{%}$ and *T1*; the second interaction term is the product of $MMF^{%}$ and *T2*. The baseline is thus represented by firms rated below P-2. The coefficients for the two interaction terms are expected to be positive, and particularly so for $MMF^{%} \times T1$.⁶ Estimates of these models are reported in Table 5. Models (1) and (2) include the same control variables as Models (1) and (2) from Table 4, respectively.

One potential source of concern is that credit ratings are not exogenous; they depend on the characteristics of the firm. Firms characteristics correlated with credit ratings (most notably the probability of default) could in principle also moderate the relation between a firm's use of short-term debt and the demand by MMFs. If this were the case, the coefficients for $MMF^{%} \times T1$ and $MMF^{%} \times T2$ would represent a biased estimate of the moderating role of short-term ratings. To address this issue, Models (3) and (4) include among the regressors five additional interaction terms between $MMF^{%}$ and each of the firm-level control variables considered (*PD*, *LNATA*, *TDTA*, *AssMat*, and *MtB*). Model (4) augments Model (3) by also including *T1* and *T2* among the regressors to control for a potential direct (i.e., not linked to the demand by MMFs) effect of a change in the assigned credit rating over time.

⁵ As discussed in Section 3.5, Rule 2a-7 was modified in 2015. Unrated securities constitute a gray regulatory area before the 2015 reform (Securities and Exchange Commission, 2015); they are thus excluded from the analyses presented in this section.

⁶ As a robustness check, the moderating role of credit ratings is also assessed in unreported analyses by splitting the dataset into three subsamples. The results from this alternative approach are consistent with those presented in this section.

Table 4
Money market funds and short-term debt, firm-level evidence.

Dep. var.:	FE		FE-2SLS			
	(1)	(2)	(3)		(4)	
	<i>STTD</i>	<i>STTD</i>	(i) <i>MMF</i> ⁹⁶	(ii) <i>STTD</i>	(i) <i>MMF</i> ⁹⁶	(ii) <i>STTD</i>
<i>MMF</i> ⁹⁶	0.039*** (0.014)	0.038** (0.014)		0.059*** (0.020)		0.059*** (0.020)
$\ln(AUM_{gov})$			-33.902*** (4.046)		-34.638*** (3.874)	
<i>PD</i>	0.082*** (0.032)	0.082*** (0.032)	-0.001 (0.007)	0.082*** (0.032)	-0.004 (0.008)	0.082*** (0.032)
<i>LNTA</i>	-2.277*** (0.605)	-2.279*** (0.607)	-0.166 (0.211)	-2.261*** (0.607)	-0.197 (0.177)	-2.262*** (0.608)
<i>TDTA</i>	-0.062*** (0.018)	-0.062*** (0.018)	-0.003 (0.005)	-0.061*** (0.018)	-0.004 (0.004)	-0.061*** (0.018)
<i>AssMat</i>	0.007 (0.012)	0.007 (0.012)	-0.000 (0.001)	0.007 (0.012)	-0.000 (0.001)	0.007 (0.012)
<i>MtB</i>	0.078 (0.180)	0.077 (0.180)	-0.020 (0.052)	0.077 (0.180)	-0.022 (0.040)	0.077 (0.180)
Macro controls	Yes	Yes		Yes		Yes
Quarter ind.	No	Yes		No		Yes
Firms FE	Yes	Yes		Yes		Yes
No. obs.	49,684	49,684		49,684		49,684
No. firms	2984	2984		2984		2984
No. quarters	30	30		30		30
Within <i>R</i> ²	0.008	0.008		0.008		0.008

This table presents coefficient estimates for fixed effects (FE) models of the use of short-term debt by individual firms. The models are estimated on the general firm-quarter panel datasets spanning from quarter 1 of 2011 up to quarter 2 of 2018 (inclusive). For Models (3) and (4), *MMF*⁹⁶ is instrumented using $\ln(AUM_{gov})$; coefficient estimates for the first-stage regression are reported in the columns labeled (i). Macro controls are the same control variables included in Model (2) of Table 3, measured as of the last month of the year-quarter. There are three quarter indicators, one for each quarter two, three, or four of a given year. All other variables are as defined in Tables 1 and 2. Standard errors robust to heteroskedasticity and double-clustered by firm and year-quarter are reported in round brackets. *, **, and *** correspond to the coefficients being significant at 10%, 5%, and 1%, respectively.

As expected, the estimated coefficient for *MMF*⁹⁶ × *T1* is positive and statistically significant— at the 1% confidence level for Models (1) to (3) and at the 10% confidence level for Model (4). The coefficient for *MMF*⁹⁶ × *T2* is also positive but smaller in magnitude; it is statistically significant at the 5% confidence level for Models (1) to (3). The estimated coefficient for *MMF*⁹⁶ in Models (1) and (2) is not significantly different from zero at customary confidence levels.⁷ The sensitivity of *STTD* to the general demand by *MMFs* is predominantly driven by firms rated as first tier, which is consistent with clientele effects explaining the positive relation between the demand by *MMFs* and the debt maturity decisions of corporations.

Comparing the results for Models (2) and (3) suggests that, if anything, the endogeneity of credit ratings could bias the estimates of their moderating effect in the opposite direction of what is predicted. The positive conditional correlation between *MMF*⁹⁶ and *STTD* appears in fact to be larger for firms characterized by a higher level of credit risk— as proxied by a higher value of *PD*; a higher level of credit risk of course entails a lower probability of being classified as first tier. As a result, the estimated coefficients for *MMF*⁹⁶ × *T1* and *MMF*⁹⁶ × *T2* are (slightly) larger for Model (3) than they are for Model (2). The estimated coefficients for *T1* and *T2* in Model (4) are not statistically significant; all else being equal, a change in short-term ratings seems to influence the debt maturity structure of nonfinancial corporations only via its moderating role for the demand by *MMFs*.

3.4. Measuring the demand by *MMFs* at the issuer level

In this section, I present the results obtained when measuring the demand by money market funds at the level of individual corporations. Aggregate and individual-level proxies for the demand by *MMFs* present specular pros and cons. On the one hand, aggregate demand is always observable; by definition, firm-level demand can instead be meaningfully measured only for firms effectively making use of short-term debt. On the other hand, firm-level demand allows one to assess the direct effect of demand shocks on firms with securities that are effectively purchased. Most notably, firm-level demand also allows the inclusion of time fixed effects in the models, hence fully controlling for any unobservable macro factor that may simultaneously influence both the demand from *MMFs* and the capital structure decisions of nonfinancial firms.

Table 6 presents the coefficient estimates for a set of FE models that include the firm- and time-varying variable *mmf*⁹⁶ as the main

⁷ Because of the inclusion of additional interaction terms, the estimated coefficients for *MMF*⁹⁶ for Models (3) and (4) cannot be directly interpreted as the average effect for firms rated below the second tier.

Table 5
Money market funds and short-term debt, by credit rating.

	(1)	(2)	(3)	(4)
$MMF^{96} \times T1$	0.115*** (0.039)	0.115*** (0.039)	0.117*** (0.041)	0.113* (0.062)
$MMF^{96} \times T2$	0.062** (0.026)	0.062** (0.026)	0.066** (0.028)	0.057 (0.039)
MMF^{96}	-0.023 (0.041)	-0.032 (0.033)	-0.216 (0.158)	-0.209 (0.163)
$MMF^{96} \times PD$			0.038* (0.021)	0.037* (0.020)
T1				0.151 (2.946)
T2				0.356 (1.597)
Firm-level controls	Yes	Yes	Yes	Yes
Macro controls	Yes	Yes	Yes	Yes
Other interactions	No	No	Yes	Yes
Quarter indicators	No	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
No. obs.	4722	4722	4722	4722
No. firms	243	243	243	243
No. periods	30	30	30	30
Within R^2	0.015	0.020	0.023	0.023

This table presents coefficient estimates for FE models of the use of short-term debt by individual firms. The models are estimated on the firm-quarter panel datasets spanning from quarter 1 of 2011 up to quarter 2 of 2018 (inclusive). Only observations where a short-term rating assigned by Moody's, S&P, or Fitch is available are considered. The dependent variable is *STTD*. Firm-level controls are the same firm-level control variables included in the models presented in Table 4. Macro controls are the same control variables included in Model (2) of Table 3, measured as of the last month of the year-quarter. There are three quarter indicators, one for quarter two, three, or four of a given year. Other interactions are the four cross-products between MMF^{96} and *LNTA*, *TDTA*, *AssMat*, or *MtB*. All other variables are as defined in Tables 1 and 2. Standard errors robust to heteroskedasticity and double-clustered by firm and by year-quarter are reported in round brackets. *, **, and *** correspond to the coefficients being significant at 10%, 5%, and 1%, respectively.

Table 6
Firm-level demand by money market funds.

	All		All, lagged		Rated only	
	(1)	(2)	(3)	(4)	(5)	(6)
mmf^{96}	0.399** (0.194)	0.408** (0.196)	0.407** (0.188)	0.398** (0.189)	0.529** (0.209)	0.537** (0.213)
<i>PD</i>	0.069 (0.098)	0.069 (0.099)	0.071 (0.122)	0.054 (0.121)	-0.956 (0.634)	-0.840 (0.618)
<i>LNTA</i>	-7.153*** (1.857)	-7.130*** (1.883)	-6.008*** (1.839)	-6.134*** (1.864)	-3.894** (1.762)	-3.609* (1.889)
<i>TDTA</i>	-0.415*** (0.064)	-0.410*** (0.065)	-0.268*** (0.060)	-0.270*** (0.059)	0.045 (0.073)	0.054 (0.076)
<i>AssMat</i>	0.039 (0.057)	0.039 (0.057)	0.051 (0.047)	0.051 (0.047)	-0.028 (0.023)	-0.025 (0.022)
<i>MtB</i>	0.426 (0.419)	0.419 (0.422)	1.449*** (0.542)	1.435*** (0.545)	0.706 (1.177)	0.833 (1.265)
Macro controls	Yes	No	Yes	No	Yes	No
Time FE	No	Yes	No	Yes	No	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
No. obs.	12,351	12,351	12,373	12,373	2805	2805
No. firms	1064	1064	1086	1086	182	182
No. periods	30	30	30	30	30	30
Within R^2	0.070	0.071	0.032	0.039	0.025	0.043

This table presents coefficient estimates for fixed effects (FE) models of the use of short-term debt by individual firms. The sample period spans from quarter 1 of 2011 up to quarter 2 of 2018 (inclusive). The dependent variable is *STTD*. Models (1) to (4) are estimated on the general firm-quarter panel dataset; Models (5) and (6) are estimated on the subsample of observations where a short-term rating is available. For Models (3) and (4), the 1-quarter lag of each firm-level explanatory variable is used. Macro controls are the same control variables included in Model (2) of Table 3, measured as of the last month of the year-quarter. Models with time FE include year-quarter indicators. All other variables are as defined in Tables 1 and 2. Standard errors robust to heteroskedasticity and double-clustered by firm and by year-quarter are reported in round brackets. *, **, and *** correspond to the coefficients being significant at 10%, 5%, and 1%, respectively.

explanatory variable. Models (1) to (4) are estimated on the whole usable sample; Models (5) and (6) only include rated observations. Models (3) and (4) modify Models (1) and (2), respectively, by using one-quarter lags for all the firm-level explanatory variables—most notably for mmf^{fo} .

The estimated coefficient for mmf^{fo} is positive as expected and statistically significant at the 5% level for all model specifications. The results obtained including time FE—i.e., Models (2), (4), and (6)—are virtually identical to those obtained for otherwise identical models including macro control variables instead—i.e., Models (1), (3), and (5). Unobservable macro factors thus do not appear to be a potentially relevant source of bias. The estimated effect of mmf^{fo} is economically meaningful and comparable in size to the results presented thus far: a one-standard-deviation increase in mmf^{fo} is associated with an increase in the share of short-term debt of approximately one-half of a percentage point. The results obtained using a firm-level proxy for the demand from MMFs are once again consistent with the idea that firms cater to the demand by preferred-habitat investors when deciding the maturity of their debt.

3.5. Evidence from the 2015 reform of rule 2a-7

The reform of Rule 2a-7 introduced in October 2015 (Securities and Exchange Commission, 2014, 2015) constitutes an ideal quasi-natural experiment to provide further evidence on the relation between the demand by MMFs for corporate securities and the use of short-term debt by nonfinancial corporations. The revised version of Rule 2a-7 allows prime MMFs—under some circumstances—to discourage (with fees) or even block the redemption of their shares. Cipriani and La Spada (2020) document that this leads to a large decline in the AUM for prime MMFs during the implementation of the reform, as investors shift toward government MMFs as a result. The reduction in $MMF\%$ that starts circa October 2015, shown in Fig. 1, is consistent with this reform-driven decrease in size for prime MMFs. The reform also removes rating-based rules for asset eligibility, incentivizing prime MMFs to decrease the share of their portfolios allocated to first-tier securities (Lugo, 2019). The reform of Rule 2a-7 thus constitutes an exogenous shock affecting the demand of prime MMFs for securities with different ratings to different degrees: the general demand decreases—as AUM are reduced—but the relative demand for second-tier (or worse) securities vis-à-vis first-tier securities increases.

Fig. 2 illustrates this shift in relative demand around the reform for commercial paper issued by nonfinancial corporations. The continuous line represents the evolution over time in the difference between the average value of mmf^{fo} for first-tier firms and the average value of mmf^{fo} for second-tier firms. Before the reform, the (positive) difference in the demand from MMFs faced by first-tier versus second-tier firms is quite stable. A stark decline in this difference is then observed once the reform is introduced. Shortly thereafter, the difference between the average share of short-term over total debt for first-tier versus second-tier firms (dashed line) begins to follow a similar downward path.

I exploit the 2015 reform to identify the effect of the demand from MMFs on corporate debt maturity by estimating an FE-2SLS model where the first stage is a difference-in-differences model.⁸ The instrument used is thus an indicator ($Reform \times T2_b$) set equal to one if the observation is rated second tier or below and $Reform = 1$, where $Reform$ is an indicator equal to one from Q4 of 2015 (i.e., when the reform was introduced) onward and equal to zero otherwise. The estimated coefficient for $Reform \times T2_b$ in the first-stage regression represents the treatment effect of the reform on the relative demand from MMFs for commercial paper issued by second-tier (or below) firms; first-tier corporations constitute the reference group. The FE-2SLS model is estimated on the sample of rated observations over the period from Q1 of 2014 to Q2 of 2018.⁹ The results are reported in Table 7.

Model (1) includes firm-level and macro control variables. Model (2) augments Model (1) by including three indicators for the calendar quarter. Finally, Model (3) replaces the macro control variables and time indicators included in Model (2) with a full set of year-quarter indicators. For each model, columns (i) and (ii) report the estimates for the first-stage and second-stage equation, respectively.

Consistent with the findings of Cipriani and La Spada (2020) and Lugo (2019), the reform is associated with a decrease in the general demand from MMFs—the estimated coefficient for $Reform$ in the first-stage regression for Models (1) and (2) is negative—and with an increase in the relative demand for second-tier (or worse) securities—the estimated coefficients for $Reform \times T2_b$ are positive and highly statistically significant.

The estimated coefficient for mmf^{fo} in the second-stage equation is once again positive and statistically significant at least at the 5% level, confirming a positive effect of the demand from MMFs on the use of short-term debt by US nonfinancial corporations.

4. Conclusions

This study investigates the relation between the demand for corporate securities by money market mutual funds—which by design are preferred-habitat agents investing predominantly in short-term securities—and the debt maturity structure of nonfinancial corporations. Consistent with the idea that corporations cater to investors' demand in their debt management, an increase in the demand from MMFs is associated with an increase in the share of outstanding corporate debt with an original maturity of less than one year. Analyses on a longitudinal sample with data observed at monthly frequency and on a firm-quarter panel dataset produce consistent results. Using detailed holding data for MMFs makes it possible to measure their demand for corporate securities at the level of individual issuers; analyses making use of this firm-level proxy and controlling for time fixed effects—including analyses that exploit the 2015 reform of Rule 2a-7 as a quasi-natural experiment for identification—produce further evidence that corporations cater to

⁸ Hendershott et al. (2011) use a similar identification strategy to estimate the effect of algorithmic trading on liquidity.

⁹ Estimating the model on the full sample of rated observations produces virtually identical results.

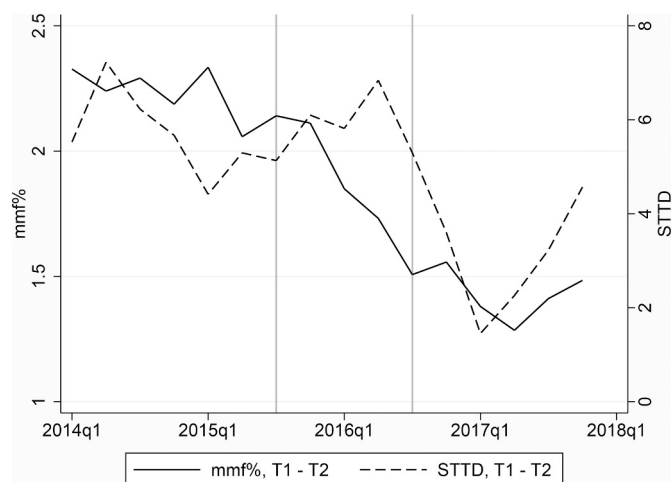


Fig. 2. Money market funds' demand and debt maturity around the 2015 reform.

This figure presents the evolution over time of the difference between the average value of mmf^{60} for first-tier versus second-tier firms (continuous line, left-axis) and the difference between the average value of $STTD$ for first-tier versus second-tier firms (dashed line, right-axis). Both mmf^{60} and $STTD$ are as defined in Table 2 and expressed in percentage points. The two vertical gray lines indicate the beginning and the end of the implementation period for the 2015 reform of Rule 2a-7 of the Investment Company Act of 1940.

Table 7

Exploiting the 2015 reform of Rule 2a-7 for identification.

Dep. variable:	(1)		(2)		(3)	
	(i) mmf^{60}	(ii) $STTD$	(i) mmf^{60}	(ii) $STTD$	(i) mmf^{60}	(ii) $STTD$
mmf^{60}		2.930** (1.376)		2.888** (1.385)		2.976** (1.386)
$Reform \times T2_b$	0.927*** (0.226)		0.926*** (0.224)		0.936*** (0.222)	
$Reform$	-0.878*** (0.289)	-1.167 (1.528)	-0.912*** (0.246)	-0.437 (1.230)		
Firm-level controls		Yes		Yes		Yes
Macro controls		Yes		Yes		No
Quarter indicators		No		Yes		No
Time FE		No		No		Yes
Firm FE		Yes		Yes		Yes
No. obs.		2066		2066		2066
No. firms		166		166		166
No. periods		18		18		18
Within R^2		0.098		0.101		0.106

This table presents coefficient estimates for FE-2SLS models of the use of short-term debt by individual firms around the 2015 reform of Rule 2a-7 of the US Investment Company Act. The models are estimated on the sample period spanning from Q1 of 2014 up to Q2 of 2018 (inclusive). Only observations where a short-term rating assigned by Moody's, S&P, or Fitch is available are considered. For each model, (i) and (ii) indicate the estimated coefficients for the first- and second-stage equation, respectively. Models with time FE include year-quarter indicators. $Reform$ is an indicator equal to one from Q4 of 2015 onward and equal to zero otherwise. $Reform \times T2_b$ is an indicator equal to one if $Reform = 1$ and the observation is rated second tier or below; it is set equal to zero otherwise. Firm-level controls include PD , $LNTA$, $TDTA$, $AssMat$, MtB , and rating indicators. All other (groups of) control variables are as defined in previous tables. Standard errors robust to heteroskedasticity and double-clustered by firm and by year-quarter are reported in round brackets. *, **, and *** correspond to the coefficients being significant at 10%, 5%, and 1%, respectively.

investors in their capital structure choices. Understanding what drives the decision by firms to rely on short-term debt is important because the latter directly translates into roll-over risk exposure. This study shows that the demand by investors with a strict preference for short-term securities is a relevant factor influencing this choice. This result can be of interest for policy makers. Greenwood et al. (2015) suggest that governments could use the gap-filling effect of government debt maturity to tilt companies toward more stable, long-term funding; similarly, policies affecting the MMFs industry can also have a material impact on the reliance on very short-term debt by nonfinancial corporations.

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