The Effects of Short-Term Liabilities on Profitability: The Case of Germany*

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Abstract

Using data from Germany this paper examines the direct effect of non-financial firms' use of short-term versus long-term liabilities. We develop a structural model of a firm's value maximization problem that predicts that profitability of the firm will change if firms alter their use of short-term versus long-term liabilities. We find that firms that rely more heavily on short-term liabilities are likely to be more profitable.

Keywords: profitability, short-term liabilities, maturity structure, capital structure.

JEL Classification Numbers: G32, G30

1 Introduction

The importance of the determinants of corporate capital structure is well recognized in the finance and economics literature. Numerous papers investigate not only the non-financial firm's choice of leverage but also the maturity structure of debt (Guedes and Opler (1996), Ozkan (2002)). Schiantarelli and Sembenelli (1999) investigate the effects of firms' debt maturity structure on profitability for Italy and the United Kingdom. They find a positive relationship between initial debt maturity and medium term performance. However, much less attention has been directed to the relationship between the maturity structure of firms' liabilities and non-financial firm performance.

Barclay and Smith (1995) define three nonmutually exclusive hypotheses to explain firms' choice of a debt maturity structure: the contracting-cost hypothesis, the signalling hypothesis, and the tax hypothesis. The contracting-cost hypothesis considers the corporation's future capital investment as a real option. In a seminal paper Myers (1977) suggests that firms that employ shorter-maturity debt are likely to have more growth options in their investment opportunities. Debt that matures before execution of investment options cannot lead to suboptimal investment decisions. There could also be a conflict between stockholders and bondholders that might lead to an underinvestment problem if long-term debt is issued.[1]

The signalling hypothesis views issuance of short-term debt as a positive signal of the firm's low credit risk. Diamond (1991) finds that the firms with the highest credit rankings prefer to issue short-term debt because of small refinancing risks: the ability to avoid a "crisis at maturity." Long-term debt is more efficient at limiting managerial discretion (Hart and Moore (1998)), and Stohs and Mauer (1996) suggest that larger, less risky firms usually make greater use of long-term debt.

Finally, the tax hypothesis analyzes the tax implications of the debt maturity choice. For example, Brick and Ravid (1985) finds that the firms employ more long-term debt when the term structure has a positive slope.

[1] Managers acting on behalf of their stockholders might reject projects with positive net present values because risky debt absorbs a portion of stockholders' benefits.

These hypotheses explain firms' preferences for certain tenors of debt. On the supply side of the market for loanable funds, short-term debt in an environment of incomplete contracts grants the lender a control right since the firm's ability to roll over the debt may be conditioned on financial ratios and adequate performance. As this mechanism limits managerial discretion it may contribute to the relaxation of financial constraints (Rajan and Winton (1995)). We model firms as price takers in the market for loanable funds, facing a schedule of interest rates on short- and long-term debt. The financial constraints they face are represented by the prices charged for loanable funds.

In a broader setting, firms make use of many types of liabilities, both short-term and long-term, beyond those strictly classified as debt. In reality, many smaller, less liquid firms firms do not enjoy access to debt markets, but nevertheless can acquire external funds through bank lending, loans from associated firms, trade credit, and other means. In structuring their liabilities, firms' managers must choose their associated maturity, taking into account many of the same issues and constraints that affect the choice of a debt maturity structure. In this paper, we broaden the perspective from the existing literature on debt maturity structure to consider firms' choice of liability maturity structure. We then consider how these choices influence the profitability of German firms. Because we consider a broader set of liabilities than traded debt, we may conduct the analysis on a much broader set of firms than those with privileged access to the capital markets (e.g., see Audretsch and Elston (2002) and Rajan and Zingales (1995)). Since the term structure of interest rates is generally upward-sloping with maturity, longer maturity liabilities usually bear higher interest rates but could be preferable if the firm may face difficulties in frequently refinancing short-term obligations and bearing the associated flotation costs (with respect to debt issuance, see Berger, Espinosa-Vega, Frame and Miller (2005), Datta, Iskandar-Datta and Raman (2005)).

We formulate a dynamic stochastic partial equilibrium model of a representative firm's value optimization problem. The model is based upon an empirically testable hypothesis regarding the association between the form of non-financial firms' liability structure and their profitability. To test the model's predictions, we apply the System

GMM estimator (Blundell and Bond, 1998) to a panel of non-financial firms obtained from the annual Bundesbank balance sheet database over the 1988–2000 period. After screening procedures our data include more than 18,000 firm-year observations.

The impact of uncertainty may differ across categories of firms. Consequently, we also consider four sample splits. Our main findings can be summarized as follows. We find evidence of a positive association between the ratio of short-term liabilities to total liabilities and non-financial firms' profitability as measured by return on assets (ROA). Results obtained from sample splits confirm findings from earlier research that firm-specific characteristics are important determinants of corporate performance.

The rest of the paper is organized as follows. Section 2 presents a dynamic stochastic model of firm's value maximization. Section 3 presents the data and estimation techniques and discusses our empirical results. Finally, Section 4 concludes.

2 Theoretical Model

The theoretical model proposed in this paper is based on the firm value optimization problem and represents a generalization of the standard Q models of investment by Hubbard and Kashyap (1992). The present value of the firm is equated to the expected discounted stream of D_t, dividends paid to shareholders, where β is the discount factor. In the analytical model, we consider a single type of liability: debt, which may be issued for one or two periods.

$$V_t(K_t) = \max_{\{I_{t+s}, B_{t+s}, L_{t+s}\}_{s=0}^{\infty}} D_t + E_t \left[\sum_{s=1}^{\infty} \beta^{t+s-1} D_{t+s} \right], \tag{1}$$

$$K_t = (1-\delta)K_{t-1} + I_t, \tag{2}$$

$$D_t = \Pi(K_{t-1}) - C(I_t, K_{t-1}) - I_t + B_t - B_{t-1}R(B_{t-1}, K_{t-1})$$
$$+ L_t - L_{t-2}R(L_{t-2}, K_{t-2}), \tag{3}$$

$$D_t \geq 0, \tag{4}$$

$$\lim_{T\to\infty} \left[\prod_{j=t}^{T-1} \beta_j \right] B_T = 0, \forall t \tag{5}$$

$$\lim_{T \to \infty} \left[\prod_{j=t}^{T-1} \beta_j \right] L_T = 0, \forall t \tag{6}$$

The firm maximizes equation (1) subject to three constraints. The first is the capital stock accounting identity $K_t = (1 - \delta)K_{t-1} + I_t$ where K_{t-1} is the beginning-of-period capital stock, I_t is investment expenditures, and δ is the rate of capital depreciation. The second constraint defines firm dividends, where $\Pi(K_{t-1})$ denotes the maximized value of current profits taking as given the beginning-of-period capital stock. $C(I_t, K_{t-1})$ is the real cost of adjusting I_t units of capital.

Two types of external financing are available. The short-term debt B_t must be repaid next period. The price of external financing is equal to the gross interest rate, $R(B_t, K_t)$ which depends on firm-specific characteristics such as the current level of debt and the capital stock available as collateral. Similar to Gilchrist and Himmelberg (1998), we also assume $R_B(B_t, K_t) > 0$: i.e., highly indebted firms must pay an additional premium to compensate debt-holders for additional costs because of monitoring or hazard problems. Moreover, $R_K(B_t, K_t) < 0$: i.e., better-collateralized firms enjoy a lower risk premium. Alternatively, the firm could use long-term financing, L_t, which must be repaid two periods hence. As in the case of short-term debt, we assume $R_L(L_t, K_t) > 0$ and $R_K(L_t, K_t) < 0$.

At time t, all present values are known with certainty while all future variables are stochastic. In order to isolate the role of debt financing we assume that equity financing is too expensive and firms only employ debt financing. Furthermore, risk neutral managers are assumed to have rational expectations.

Financial frictions are introduced through the non-negativity constraint for dividends, $D_t \geq 0$ and the corresponding Lagrange multiplier λ_t which can be interpreted as the shadow cost of internally generated funds. Equations (5) and (6) are the transversality conditions which prevent the firm from borrowing an infinite amount and paying it out as dividends.

Solving the optimization problem we derive the following Euler equation for investment:[2]

$$C_I(I_t, K_{t-1}) + 1 = \tag{7}$$
$$E_t\left[\beta\Theta_t\left(\Pi_K(K_t) + (1-\delta)(C_I(I_{t+1}, K_t) + 1) - B_t R_K(B_t, K_t)\right)\right] - E_t\left[\beta^2 \Psi_t L_t R_K(L_{t,} K_t)\right]$$

Note that the shadow prices of short-term and long-term debt are $\Theta_t = \frac{(1+\lambda_{t+1})}{(1+\lambda_t)}$ and $\Psi_t = \frac{(1+\lambda_{t+2})}{(1+\lambda_t)}$, respectively. Expressions $\beta\Theta_t$ and $\beta^2\Psi_t$ may serve as stochastic time-varying discount factors equal to β and β^2, respectively, in the absence of financial constraints ($\lambda_{t+1} = \lambda_{t+1} = \lambda_t$).

From the first-order conditions for short- and long-term debt we derive

$$E_t\left[\beta\Theta_t\left[R(B_t, K_t) + B_t R_B(B_t, K_t)\right]\right] = 1 \tag{8}$$
$$E_t\left[\beta^2\Psi_t\left[R(L_t, K_t) + L_t R_L(L_t, K_t)\right]\right] = 1 \tag{9}$$

Equations 8 and 9 have a strong analogy in consumption theory (Whited (1992)). Under the assumption of perfect capital markets the price of each tenor of debt must equal the inverse discount factor: $R(B_t, K_t) = 1/\beta$ and $R(L_t, K_t) = 1/\beta^2$.

Combining the first order conditions and assuming homogeneity of degree one of profit function, we derive the optimal level of debt to maximize expected profitability:

$$\begin{aligned} ROA_t &= \frac{R_K(L_{t,}K_t)}{\beta R_L(L_t, K_t)}\left[R(B_t, K_t) + B_t R_B(B_t, K_t) - \beta E\Psi_t R(L_t, K_t)\right] \\ &+ \frac{1}{\beta E\Theta_t}\left[C_I(I_t, K_{t-1}) + 1\right] - \frac{(1-\delta)E\left[\Theta_t(C_I(I_{t+1}, K_t) + 1)\right]}{E\Theta_t} + B_t R_B(B_t, K_t) \end{aligned} \tag{10}$$

Expected profitability is inversely related to the shadow prices of short-term debt, Θ_t, and long-term debt, Ψ_t.

From equation (10) we obtain:

$$\begin{aligned} \frac{ROA_t}{\partial B_t} &= \frac{R_K(L_{t,}K_t)R_B(B_t, K_t)}{\beta R_L(L_t, K_t)} \\ &+ \left[\frac{R_K(L_{t,}K_t)}{\beta R_L(L_t, K_t)} + 1\right]\left[R_B(B_t, K_t) + B_t R_{BB}(B_t, K_t)\right] \end{aligned} \tag{11}$$

[2]For simplicity, we ignore the derivative of the investment adjustment cost function with respect to the capital stock, $C_{K,t}$. In our data the mean of $\frac{I_t}{K_t}$=0.04, and the squared term will be 0.0016 given that $C_{K,t} = \left(\frac{I_t}{K_t}\right)^2$. Therefore, its effect is negligible.

For reasons of convenience we define debt gross interest rates as a linear function of debt and capital and use the chain rule $\frac{\partial \Pi_K(K_t)}{\partial B_t} = \frac{\partial \Pi_K(K_t)}{\partial B_t/L_t}\frac{1}{L_t}$. The effect of an increase in short-term financing relative to long-term financing may be expressed as

$$\frac{\partial ROA_t}{\partial B_t/L_t} = \left[\frac{2R_K(L_{t,}K_t)}{\beta R_L(L_t, K_t)} + 1\right] R_B(B_t, K_t)L_t. \tag{12}$$

It is immediately clear that the sign of this derivative is positive if $2R_K(L_{t,}K_t)/\beta R_L(L_t, K_t) < 1$. If the sensitivity of long-term debt with respect to the size of the firm is high, then issuing short-term debt will be a more profitable strategy. Schiantarelli and Sembenelli (1999) suggest that the issuance of short-term debt reduces the probability that a firm will miss profitable investment opportunities. Hence, greater reliance on short-term debt and the resulting flexibility in the firm's capital structure may be associated with higher levels of profitability, which provides us with a testable hypothesis.

3 Empirical Implementation

3.1 Data

The Bundesbank's balance sheet database of German companies is used to test our hypothesis regarding firms' choice of liability maturity structure.[3] The collection of the data is related to the supervisory status of the Bundesbank, which is legally assigned to overview the credit standing of all companies conducting rediscount transactions. If a company is involved in these transactions, it must submit its annual accounts to the local branches of the Bundesbank in order to prove its solvency.

The database covers on average 70,000 firms' annual characteristics from 1988 to 2000. We consider only manufacturing firms, which are corporations with Tax Balance Sheet (Steuerbilanz) or Commercial Balance Sheet (Handelsbilanz) types of accounting.[4]

We utilize data items Net profit ($AP189$), Total assets ($AP088$), Cash and equivalents ($AP045$) and Sales ($AP144$) to generate measures of profitability (ROA), liquidity

[3]For a more detailed description of the database see von Kalckreuth (2003), Harhoff and Ramb (2005) and the references therein.

[4]We excluded firms with Opening Balance Sheet (Eröffnungsbilanz) or Carcass Balance Sheet (Rumpfbilanz) since these types of balance sheets do not cover the entire year of the firm's activity.

($Cash/TA$) and the sales-to-assets ratio ($Sales/TA$). The key variable of our research is the short-term liability ratio (ST/TL) which is defined as a ratio of short-term liabilities ($AP111$) to total liabilities ($AP111 + AP128$).[5]

We apply several sample selection criteria to the original sample. Observations with the following characteristics are removed from the sample: (a) those with values of ratio variables lower than the first percentile or higher than the 99th percentile; (b) those from firms that have fewer than ten consequential observations over the time span.[6] We employ the screened data to reduce the potential impact of outliers upon the parameter estimates.

Table 1 presents descriptive statistics for $Cash/TA$, $Sales/TA$, ST/TL and ROA for the pooled time-series cross-sectional data. We observe that German companies make heavy use of short-term liabilities. Their average ratio of short-term liabilities to total liabilities is 0.70. Their average profitability (ROA) is equal to seven per cent.

The empirical literature investigating firms' capital structure behavior has identified that firm-specific characteristics play an important role.[7] We might expect that a group of firms with similar characteristics (e.g., those firms with high levels of liquidity) might behave similarly, and quite differently from those with differing characteristics. Consequently, we split the sample into subsamples of firms to investigate if the model's predictions would receive support in each subsample. We consider four different sample splits in the interest of identifying groups of firms that may have similar characteristics relevant to their choice of liability maturity structure. The splits are based on firm size, the ratio of short-term liabilities to total assets, the liquidity ratio and the ratio of short-term bank liabilities to total liabilities.

The sample splits are based on firms' average values of the characteristic lying in the first or fourth quartile of the sample. For instance, a firm with number of employees above the 75th percentile of the distribution will be classed as large, while a firm with number of employees below the 25th percentile will be classed as small. As such, the

[5]See also Appendix 1 for data description.

[6]This screen is desirable for GMM-SYSTEM estimation discussed in the next Subsection.

[7]See Ozkan and Ozkan (2004).

classifications are not mutually exhaustive.

Furthermore, we investigate the relationship between corporate performance and debt maturity structure for six of the largest industries: textiles (NACE 17, 28, 19), wood products (NACE 20, 21, 22), chemical (NACE 23, 24, 25), metallurgy (NACE 27, 28), metal processing (NACE 29, 31, 34) and electronics (NACE 30, 32, 33).[8]

3.2 Econometric Results

We estimate several sets of regressions, comparing the results with respect to different subsamples. Profitability of total assets is our dependent variable. We lag all explanatory variables by one year (except profitability). Hence, for firm i in year t we estimate equation

$$\begin{aligned} ROA_{it} &= \phi_0 + \sum_{s=1}^{2} \phi_s ROA_{i,t-s} + \phi_3 \frac{Cash_{i,t}}{TA_{i,t}} + \phi_4 \frac{Sales_{i,t-1}}{TA_{i,t-1}} \\ &\quad + \phi_5 \frac{ST_{i,t}}{TL_{i,t}} + \kappa_t + \omega_i + \nu_{it} \end{aligned} \tag{13}$$

Thus, we can now formally state our hypothesis that the liability maturity structure affects firms' profitability. This hypothesis can be tested by investigating the significance of ϕ_5 in equation (13):

$$\begin{aligned} H_0 &: \phi_5 = 0 \\ H_1 &: \phi_5 \neq 0 \end{aligned} \tag{14}$$

Estimates of optimal corporate behavior often suffer from endogeneity problems, and the use of instrumental variables may be considered as a possible solution. We estimate our econometric models using the system dynamic panel data (DPD) estimator. DPD combines equations in differences of the variables with equations in levels of the variables. In this System GMM approach (see Blundell and Bond (1998)), lagged levels are used as instruments for differenced equations and lagged differences are used as instruments for level equations.

[8] The classification is based on Klassifikation der Wirtschaftszweige, Ausgabe 1993 (WZ 93).

We build a set of instruments including ROA_{t-2} to ROA_{t-8}, $(Cash/TA)_{t-1}$ to $(Cash/TA)_{t-8}$, $(Sales/TA)_{t-1}$ to $(Sales/TA)_{t-8}$ and ST/TL_{t-1} to ST/TL_{t-8} for the difference equations and ΔROA_{t-2} to ΔROA_{t-9}, $\Delta(Cash/TA)_{t-1}$ to $\Delta(Cash/TA)_{t-8}$, $\Delta(Sales/TA)_{t-1}$ to $\Delta(Sales/TA)_{t-8}$ and $\Delta ST/TL_{t-1}$ to $\Delta ST/TL_{t-8}$ for the level equations. The models are estimated using a first difference transformation to remove the individual firm effect.

The reliability of our econometric methodology depends crucially on the validity of instruments. We check it with Sargan's test of overidentifying restrictions, which is asymptotically distributed as χ^2 in the number of overidentifying restrictions. The consistency of estimates also depends on the serial correlation in the error terms. We present test statistics for first-order and second-order serial correlation in Tables 2-4, which lay out our results on the links between corporate performance and liability maturity structure.

Table 2 displays results of equation (13) for all firms and two subsamples. An increase in the reliance on short-term liabilities leads to an increase in firms' profitability, with a highly significant effect. Hence, our findings support the hypothesis that a shorter tenor of liabilities affects the firm's profitability. This finding is consistent with that of Agarwal and Elston (2001) who argue that banks' rent-seeking behavior is responsible for the dominance of long term-liabilities in German firms' balance sheets.

Having established the positive effect of short-term liabilities on return on assets, we next investigate if the strength of the association varies across groups of firms with differing characteristics. Columns 2 and 3 of Table 2 report results for small and large firms. Based on the point estimates, the financial performance of smaller firms is slightly less sensitive to the changes in liability maturity structure. We find a more interesting contrast in the results for firms with low and high levels of short-term liabilities relative to assets, reported in the two last columns. Firms with few short-term financial commitments display sensitivity to the liability maturity structure, unlike those with heavy demands on near-term cash flow. Both types of firms display significant sensitivity to liquidity, measured by cash holdings.

The first two columns of Table 3 present results for low-liquidity firms: those in the bottom quartile of the distribution of cash-to-assets ratios versus their high-liquidity counterparts. The liability maturity structure affects both groups, but the performance of less-liquid firms is less sensitive to the changes in the ratio of short-term liabilities to total liabilities. The last two columns of Table 3 present results for firms with low reliance on bank loans versus high reliance on bank loans, respectively. Both types of firms are significantly affected by the liability maturity structure. Not surprisingly, these effects are considerably stronger for those firms with less reliance on bank lending.

In Table 4 we investigate the sensitivity of profitability to liability maturity structure among the six largest industries in the sample. The results indicates that firms that belong to metallurgical and chemical industries have higher sensitivity compared to firms in the other four industries.

In summary, we find strong support for our hypothesis (Equation 14). The profitability of firms increases when they make greater use of short-term liabilities rather than long-term liabilities in their capital structure. It could be explained by the fact that short-term debt affects profitability through better monitoring and control, or by allowing greater flexibility to exploit investment opportunities.

4 Conclusions

In this study, we investigate the relationship between non-financial firms' profitability and the ratio of short-term liabilities to total liabilities. We hypothesize that firms' profitability varies in response to variations in firms' liability maturity structure, with greater reliance on short-term liabilities associated with higher profitability.

We test this hypothesis by employing the Bundesbank's balance sheet dataset of German firms for the 1988–2000 period and find strong support for our hypothesis. The findings in this study, derived from a broad sample of firms across the German industrial sector, shed considerable light on the relation of non-financial firms' liability maturity structure and their profitability.

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Appendix 1: Construction of the firm specific measures

The following variables are used in the annual empirical study from the Deutsche Bundesbank's balance sheet database:

AP034: Number of employees
AP045: Cash and equivalents
AP088: Total assets
AP097: Liabilities to banks
AP111: Short-term borrowed capital
AP128: Long-term borrowed capital
AP144: Sales revenues
AP189: Net profit

Table 1: Descriptive statistics and definitions, 1988–2000

Variable	Definition	μ	σ	N
ROA	Net Profit / Total Assets	0.07	0.00	19,207
$Cash/TA$	Cash / Total Assets	0.09	0.01	18,594
$Sales/TA$	Sales / Total Assets	2.30	0.87	18,945
ST/TL	Short-Term Liabilities / Total Liabilities	0.70	0.03	19,069
ST/TA	Short-Term Liabilities / Total Assets	0.53	0.04	19,052
LT/TA	Long-Term Liabilities / Total Assets	0.22	0.02	19,207
$(ST+LT)/TA$	Total Liabilities / Total Assets	0.75	0.03	19,207

Note: N is sample size (firm-years), μ and σ represent mean and standard deviation respectively.

Table 2: Sensitivity of ROA to Liability Maturity Structure: All firms and sample splits

Dependent Variable: ROA_t					
	All	Small	Large	Low ST/TA	High ST/TA
ROA_{t-1}	0.419***	0.392***	0.210*	0.166**	0.443***
	(0.054)	(0.090)	(0.115)	(0.082)	(0.162)
ROA_{t-2}	0.091***	0.110**	0.143***	0.171***	0.103
	(0.028)	(0.047)	(0.055)	(0.038)	(0.077)
$(Cash/TA)_t$	0.145***	0.150***	0.117***	0.102***	0.110***
	(0.008)	(0.015)	(0.018)	(0.018)	(0.017)
$(Sales/TA)_{t-1}$	0.007***	0.001	0.026***	0.027***	0.004
	(0.002)	(0.003)	(0.006)	(0.006)	(0.005)
$(ST/TL)_t$	0.077***	0.066***	0.074***	0.110***	0.027
	(0.006)	(0.011)	(0.017)	(0.013)	(0.017)
Firm-years	14693	3268	3839	3745	3432
Sargan	0.104	0.193	0.163	0.137	0.626
AR(1)	-9.29	-5.5	-3.61	-4.74	-3.18
AR(2)	.0724	1.08	-1.42	-2.24	-.47

Note: Each equation includes constant, year and industry dummy variables. Asymptotic robust standard errors are reported in the brackets. Estimation by two-step System GMM (with Windmeijer-corrected standard errors) using the `xtabond2` package for Stata. Sargan is a Sargan–Hansen test of overidentifying restrictions (p-value reported). AR(k) is the test for k-th order autocorrelation. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 3: Sensitivity of ROA to Liability Maturity Structure: Sample splits II

Dependent Variable: ROA_t				
	Low Liquidity	High Liquidity	Low Bank Liabilities	High Bank Liabilities
ROA_{t-1}	0.332	0.242***	0.381***	0.238
	(0.202)	(0.075)	(0.096)	(0.154)
ROA_{t-2}	0.081	0.123***	0.154***	0.073
	(0.081)	(0.044)	(0.054)	(0.066)
$(Cash/TA)_t$	0.211***	0.140***	0.126***	0.150***
	(0.051)	(0.013)	(0.015)	(0.024)
$(Sales/TA)_{t-1}$	0.009	0.001	0.008	0.009**
	(0.007)	(0.005)	(0.005)	(0.005)
$(ST/TL)_t$	0.047***	0.121***	0.106***	0.050***
	(0.012)	(0.014)	(0.016)	(0.011)
Firm-years	3563	3605	3575	3654
Sargan	0.259	0.331	0.301	0.287
AR(1)	-2.30***	-5.21***	-4.87***	-2.73***
AR(2)	-1.01	-0.65	0.18	-1.46

Note: Each equation includes constant, year and industry dummy variables. Asymptotic robust standard errors are reported in the brackets. Estimation by two-step System GMM (with Windmeijer-corrected standard errors) using the `xtabond2` package for Stata. Sargan is a Sargan–Hansen test of overidentifying restrictions (p-value reported). AR(k) is the test for k-th order autocorrelation. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4: Sensitivity of ROA to Liability Maturity Structure: Industry splits

Dependent Variable: ROA_t						
	Textile	Wood	Chemical	Metallurgy	Metal Proc.	Electronics
ROA_{t-1}	0.415**	0.341***	0.166	0.420***	0.413***	0.317**
	(0.178)	(0.123)	(0.112)	(0.114)	(0.106)	(0.132)
ROA_{t-2}	0.071	0.101*	0.193***	0.081	0.087	0.184**
	(0.118)	(0.059)	(0.059)	(0.061)	(0.055)	(0.077)
$(Cash/TA)_t$	0.114***	0.165***	0.168***	0.154***	0.130***	0.198***
	(0.032)	(0.023)	(0.022)	(0.021)	(0.017)	(0.034)
$(Sales/TA)_{t-1}$	0.009	0.010**	0.017**	0.008*	0.008*	0.022***
	(0.008)	(0.005)	(0.007)	(0.004)	(0.004)	(0.007)
$(ST/TL)_t$	0.070***	0.052***	0.097***	0.089***	0.070***	0.071***
	(0.023)	(0.013)	(0.018)	(0.015)	(0.013)	(0.026)
Firm-years	1078	3069	2280	2076	3559	1261
Sargan	0.309	0.031	0.146	0.798	0.336	0.856
AR(1)	-2.96***	-4.00***	-3.05***	-3.97***	-4.97***	-3.24***
AR(2)	0.62	-0.24	-2.75***	-0.39	0.10	-0.17

Note: Each equation includes constant, year and industry dummy variables. Asymptotic robust standard errors are reported in the brackets. Estimation by two-step System GMM (with Windmeijer-corrected standard errors) using the `xtabond2` package for Stata. Sargan is a Sargan–Hansen test of overidentifying restrictions (p-value reported). AR(k) is the test for k-th order autocorrelation. * significant at 10%; ** significant at 5%; *** significant at 1%.